

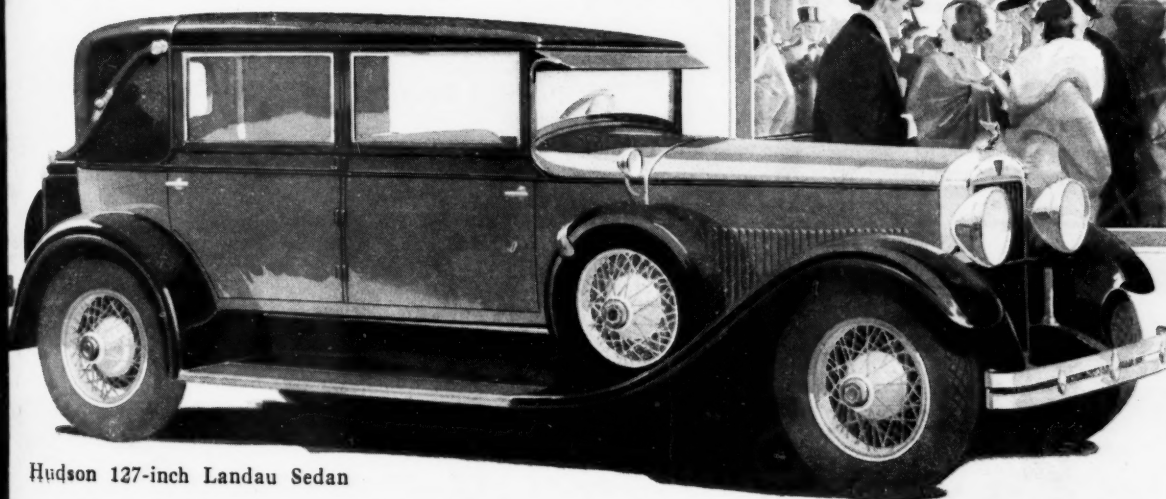
NOV 19 1928

# MOTOR AGE

A Chilton Class Journal Publication  
Published Weekly November 15, 1928

## HUDSON ESSEX ONLY TWO SUPER-SIXES

*What that means  
to Motordom*



Hudson 127-inch Landau Sedan

Public acknowledgment of the performance and reliability—the smartness and value of the exclusive and patented Super-Six is heard from all motorists.

And further proof is found in sales which outnumber any other six.

Year after year this basic principle has given to Hudson and Essex the advantage of smoothness and reliability beyond any other engineering development. And with this advantage there has been constant improvement in performance—with greater acceleration, higher speed and continuous reliability.

Modern in every sense of design and mechanical excellence and with bodies and fittings in advance of cars of their price class, both Hudson and Essex rightly enjoy the reputation of being the outstanding values of motordom.

No motor equals the fame of the Super-Six. No chassis excels in reputation all the qualities that count for performance satisfaction.

And no cars have such distinctive price attractions. Sales prove that. Owners confirm it and all motordom acknowledges it.

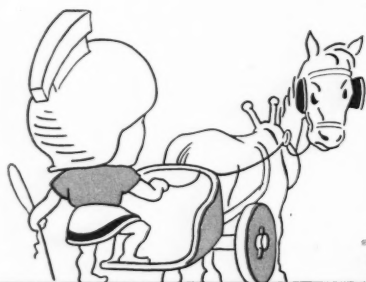
*Greater Money Making Opportunities Than Ever*

HUDSON MOTOR CAR COMPANY - - DETROIT, MICHIGAN

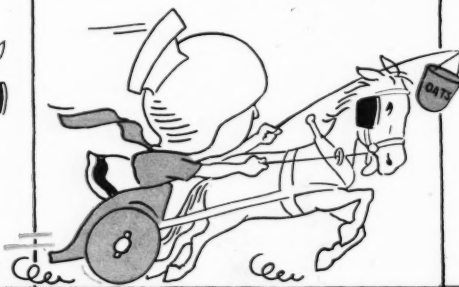
This advertisement is reproduced from the December 8, 1928, issue of THE SATURDAY EVENING POST reaching 3,000,000 readers

## Thumbs Up!

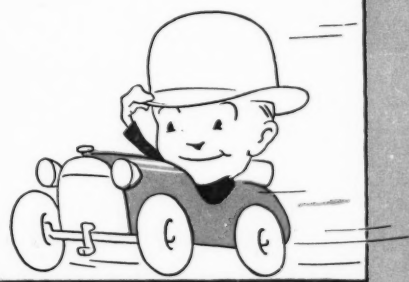
In ancient Rome, in Nero's day,  
When chariot racers drew big pay~



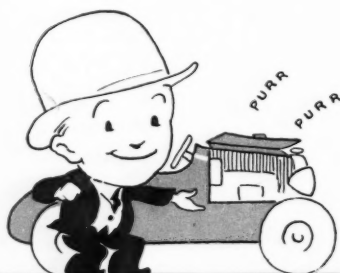
It wasn't piston rings but oats  
That helped draw cheers from Roman throats.



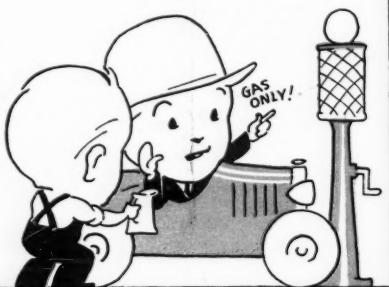
Today it's piston rings you need  
To get that final burst of speed~



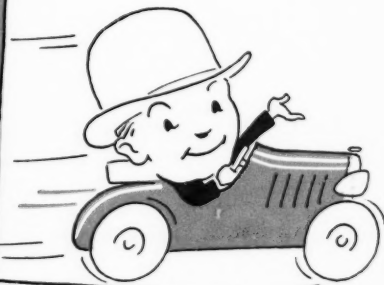
And nearly all who know their parts  
Have **PERFECT CIRCLES** in their carts.



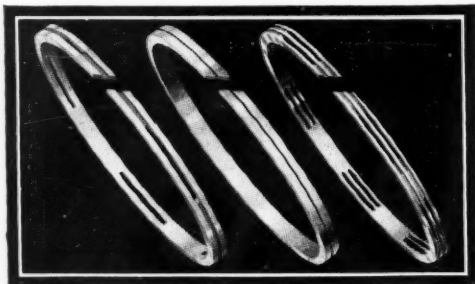
For **PERFECT CIRCLES** regulate  
And save oil while they lubricate.



To wear and tear they put a stop~  
And make 'er run just like a top.



Tune in on  
**THE PERFECT CIRCLE SYMPHONY HOUR**  
featuring the Cincinnati Symphony Orchestra  
over Station WLW (700 kilocycles)  
Every Tuesday Evening, 8 to 9, Eastern Standard Time



Oil-Regulating  
Type, 60c

Compression  
Type, 30c

Double-Duty  
Type, 75c

**F**or new-car performance insist on **PERFECT CIRCLES** when you have your motor reconditioned. Three-fourths of America's passenger car manufacturers use **PERFECT CIRCLE Oil-Regulating** rings as original equipment in all or a large part of their production, and also for service requirements. With their reputations dependent on the performance of their cars they take no chances. Neither should you.

**THE PERFECT CIRCLE COMPANY** • General Offices: Hagerstown, Indiana

America's Oldest Volume Producers of Piston Rings

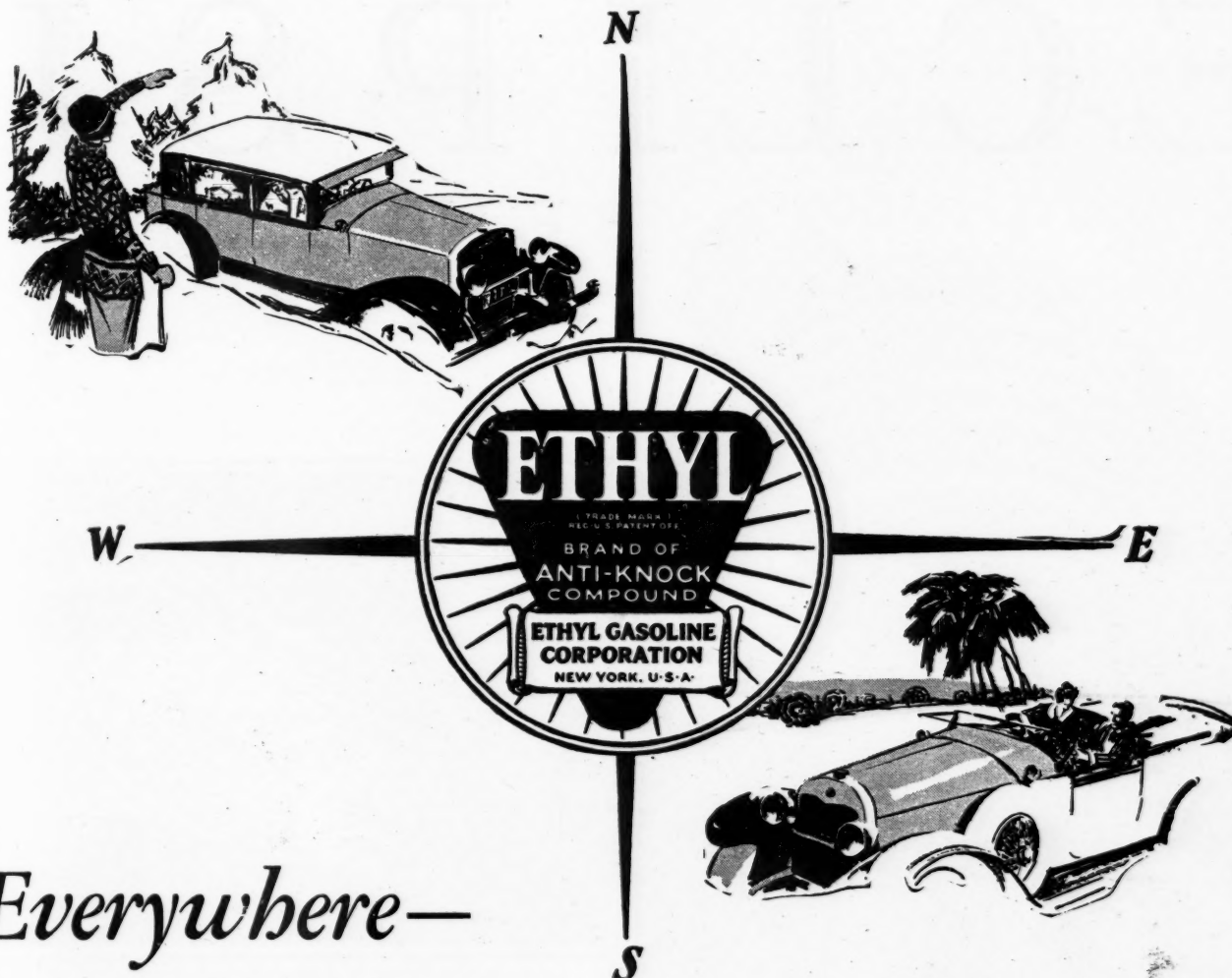
PLANTS AT HAGERSTOWN, NEWCASTLE AND TIPTON, INDIANA

EXPORT SALES OFFICES: 519 WEST WASHINGTON ST., CHICAGO, ILLINOIS

# PERFECT CIRCLE PISTON RINGS

It Pays to Use the Kind of Piston Rings People Want





# Everywhere— ETHYL

*Knocks out that "knock"*

**W**HEREVER you live, whatever the climate, you will find one or more oil companies putting Ethyl fluid in gasoline suited to your driving conditions.

What is responsible for this widespread distribution?

Appreciation by thirty-six of the leading oil companies of the merit of Ethyl, which was developed by the General Motors Research Laboratories in its years of search for something that would elimi-

nate the "knock" inherent in gasoline.

These major companies have found Ethyl fluid so effective that they are mixing it with their already good gasoline to provide a still better fuel—*Ethyl Gasoline*. They are meeting the demands of the motoring public in making this fuel available in every community—through their own stations, hundreds of resellers and thousands of dealers.

Ethyl Gasoline improves the performance of any car. It turns the higher compression created by carbon into extra power. It gives a special thrill in the high compression motors now being manufactured.

**ETHYL GASOLINE CORPORATION**

25 Broadway, New York City • 56 Church Street, Toronto, Canada • 36, Queen Anne's Gate, London, England

# ECLIPSE

## BENDIX DRIVE



*Approximately 1½ Times Actual Size*



### For Genuine SERVICE

**B**y actual factory tests, *genuine* springs for the Eclipse Bendix Drive have been proved to last longer in service—and because they are the same springs used in the original drive, you will find it always pays to use them for replacement. It is the one way to assure the car owner of dependable, satisfactory performance.

A red and yellow label, with the name "Bendix" identifies genuine springs, and guarantees them to be duplicates of the springs originally used in the Eclipse Bendix Drive. Look for it.

Your jobber can supply you with genuine springs in the handy assortment packages, enabling you to make quick replacements on the majority of cars.

**ECLIPSE MACHINE COMPANY, ELMIRA, N. Y.**  
Eclipse Machine Co., East Orange, N. J.      Eclipse Machine Co., Ltd., Walkerville, Ont.

# MOTOR AGE

Vol. LIV

Reg. U. S. Pat. Off.  
Established 1899

No. 20

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## CONTENTS

News of the Industry .....	9
Automobiles and the Air .....	16
By B. F. MAHONEY, President, Ryan Aircraft Corp.	
His One Price Plan Sells Used Cars.....	19
By JAMES GRANT	
12 Ways to Sell High-Priced Items.....	21
By MANDUS E. BRIDSTON	
A Motor Age Impression .....	23
By ED. REID	
Make Them Want to Come to Your Shop.....	24
By ERNEST W. FAIR	
Selling Cars and Service Together .....	26
By RANDALL R. HOWARD	
A General Garage Layout .....	29
By TOM WILDER	
"With an O. K. That Counts" .....	30
By LOUISE CROWE WETZEL	
Bracke Carburetor Embodies Fuel Feed System.....	33
By M. WARREN BAKER	
New Merchandise .....	35
Readers' Clearing House .....	37
Questions Answered by C. EDWARD PACKER	
Price and Weights .....	43
Mechanical Specifications .....	46
Advertisers' Index .....	71

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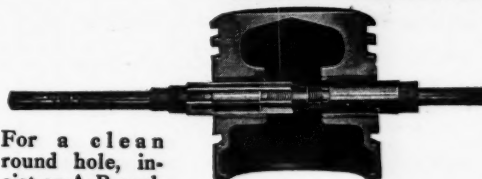
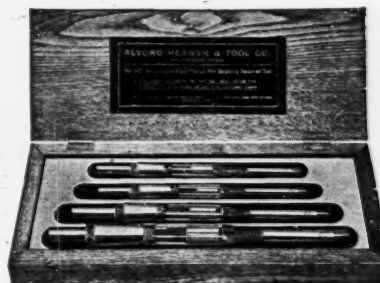
Subscriptions accepted only from the Automotive Trade  
Entered as Second Class Matter, June 2, 1927, at the Post Office at Philadelphia, Pa., under Act of March 2, 1879.

## Stock Small Tools and Watch the Profits Grow The Well Equipped Shop Gets the Profitable Jobs!

If you expect your customers to come back you must be sure that you are equipped to do every job they require . . . and equipped to do it right. Small tools are among the most important items in modern shop equipment, and small tool buying should be carefully done. Investigate the Alvord-Polk line when next you are ready to purchase small tools. See your jobber for descriptive material . . . and see his displays of the complete Alvord-Polk Line.

### Piston Pin Reamers

Piston Pin Reamers in properly assorted sets to meet every garage, service station, and dealer requirement; and priced at your convenience.



For a clean round hole, insist on A-P quality tools every time. They are designed for the job.



Adjustable hand reamers, straight or sheer cut, six blades. Made of semi-high speed steel, interchangeable blades. Ideal for that better job.

# ALVORD POLK

## TOOLS FOR REPAIR SHOPS

Alvord-Polk Tool Company  
Millersburg Pennsylvania



# NEW LAPS Systems

REG. U. S. PAT. OFF.

with Parts Index System, Bin Loading Diagram. **MOVIT** quick-change dividers

REG. U. S. PAT. OFF.

Stock Record Card furnished for use in Parts Index Board

NAME OF PART	PART NUMBER	LIST PRICE	LOCATION			MIN.	MAX.
			UNIT	SHELF	BIN		
CON. ROD	19131	2 10	12	A	4	4	8
PISTON					7	8	16
FAN					3	1	3
						3	7
						2	5

MOVIT, the quick change divider fastener that makes every bin in a LAPS System instantly adjustable and eliminates the use of bolts in fastening dividers.

PATENT APPLIED FOR

Parts Bin Loading Diagram for unit 1 of the 2 unit system in background. This diagram furnished with each system indicates location of bins in car assembly group where parts are to be stored.

Parts Index Board furnished with every new LAPS system. It provides a complete stock index record for every part stored in the bins.

END IRONS for LONG PARTS

A 2-UNIT LAPS SYSTEM

Instantly adjustable in bin Size and Arrangement — Adaptable to any method of Parts Storage

WHEN you purchase a new LAPS System you get the following proven advantages of parts storage and stock record keeping.

(1) Correctly designed parts bins for a balanced stock with labels for every bin.

(2) A parts index system that is adaptable to listing parts as in any car manufacturer's parts book, or in accordance with your own method of listing and locating parts, or listing and locating parts numerically, alphabetically, grouped by car assembly numerically or grouped by car assembly alphabetically.

(3) MOVIT, the divider fastener that makes every LAPS divider a quick change divider. This feature is

used exclusively in LAPS and provides for the quickest rearrangement of bins or bin sizes possible to keep system up to date with shifting parts stocks and new car models.

(4) A system that will fit your stock requirements. LAPS systems are built in various sizes ranging from a 1 unit system carrying a \$500 stock, to a 24 unit system carrying a \$16,000 stock.

Ask your jobber to give you full details on Lupton Auto Parts Storage Systems and make certain you get MOVIT, the quick-change divider fastener. Manufactured exclusively by David Lupton's Sons Company, General Motors Building, Detroit, Mich.

## LUPTON AUTO PARTS STORAGE

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# Car Owners Don't "OUTGROW" **STUDEBAKER**

That is one reason why  
**YOU** should investigate  
Studebaker's franchise

**O**WNERS don't "outgrow" Studebaker—because there is one of Studebaker's four great lines of cars to suit every purse and purpose. When an owner "graduates" into a higher price class—you don't lose him, you *sell* him—another Studebaker!

### *Only a Small Investment Needed*

You can set up your own business with only a small investment, thanks to Studebaker's franchise. You can reap full-line profits on a one-car investment. You can grow and prosper as other Studebaker-Erskine dealers have.

### *What You Sell*

You sell The President Eight,

which has outsold all other eights in the world—the holder of 5 world records—30,000 miles in 26,326 minutes!

You sell the famous Commander—25,000 miles in 23,000 minutes; The Dictator, Champion of its price class; and The Erskine Six, finest, fastest car under \$1000.

And you can sell, too, Studebaker Commercial Cars—to tradesmen, undertakers, police and fire departments, hospitals!

Here is a franchise with profit opportunities unique in the industry! Get the facts about it *now*. Address Department 51, The Studebaker Corporation of America, South Bend, Indiana.

### *New Contract for Towns and Villages*

Studebaker offers an unusually attractive franchise contract for small towns and villages. Hardly any capital is needed. You need merely maintain an Erskine Six demonstrator to sell the whole line—4 great passenger cars in 4 price classes as well as commercial cars! Write **TODAY** for the confidential facts—if you are now selling cars state what make.

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THE WORLD HAS A NEW AND FINER MOTOR CAR

..and in **OCTOBER**

**10,166** *more cars*

than last October

**A landslide for the NASH "400"!**

**N**ASH "400" sales figures tell how emphatically and overwhelmingly America has endorsed this new and finer motor car.

In July, 2916 more cars than any July in Nash history—in August, 4498 more than any previous August—in September, 6176 more than the best previous September

—and in October, 10,166 more Nash cars than last October!

The circle of Nash owners, the circle of "400" satisfaction and enthusiasm, *the circle of Nash dealers*—is growing every month, every day, *every hour*—because the money never bought so fine a motor car before!

**IMPORTANT "400" FEATURES—NO OTHER CAR HAS THEM ALL**

Twin-Ignition motor	New double drop frame	Exterior metalware chrome plated over nickel
12 Aircraft type spark plugs	Torsional vibration damper	Short turning radius
High compression	World's easiest steering	Longer wheelbases
Houdaille and Lovejoy shock absorbers <small>(exclusive Nash mounting)</small>	7-bearing crankshaft <small>(bellow crank pins)</small>	One-piece Salon fenders
Salon Bodies	Bijur centralized chassis lubrication	Clear vision front pillar posts
Aluminum alloy pistons <small>(Invar Struts)</small>	Electric clocks	Nash Special Design front and rear bumpers

THE NASH MOTORS COMPANY

Kenosha, Wisconsin

**NASH "400"**

*Leads the World in Motor Car Value*



## Country-Wide Bearings Service



**E**VERY dot on the map represents one or more distributors who stock New Departure Ball Bearings.

That is why any automobile service station—in the big cities or at the cross-roads can now get the bearing it wants—*quickly!*

United Motors Service, through its 23 control branches and 800 authorized distributors at strategic locations has perfected a bearings

field service that is fully as good as the bearing.

It will pay you to know the distributor nearest to you. He is also equipped to supply other standard parts and accessories promptly.

Write the New Departure Company or United Motors Service at 3044 West Grand Blvd., Detroit for a complete list of these distributors, also copies of the Automobile Service Station Manual and Service Catalog. Free for the asking.

## New Departure Ball Bearings

The New Departure Manufacturing Co.,  
Bristol, Connecticut  
Chicago • Detroit • San Francisco

A Budd-designed body is not just a variation of what other cars are today—it is a realization of what other cars will be tomorrow.

---

EDWARD G.

**BUDD**

MFG. CO.

*Philadelphia and Detroit*

# MOTOR AGE

VOLUME LIV

Philadelphia, November 15, 1928

NUMBER 20

## N.A.P.A. Reelects Executive Heads

Three New Lines Approved by Membership to be Added

### ENDORSE CATALOG

DETROIT, Nov. 11—The annual convention of the National Automotive Parts Association which closed its sessions today at the Hotel Statler far outstripped any previous convention both in the matter of attendance and in the variety of program offered.

Associate distributors were invited to the sessions for the first time in the history of the association. The idea was to convey to the distributors a more comprehensive idea of the activities of the N.A.P.A. and also to give the distributors an opportunity to voice their views on various matters to the manufacturers and warehousemen. This feature proved such an outstanding success that it is likely that the policy will be continued at future meetings.

The N.A.P.A. has enjoyed a surprising growth, especially during the last year. At the beginning of the year the association had 1011 jobbing contacts, its was announced, of which 527 use N.A.P.A. service exclusively. The fiscal year just closed showed a very substantial business increase, and, plans discussed during the meetings would indicate that future volume should continue on an upward curve.

#### Add New Lines

The association will very shortly announce to the trade the identity of three important lines of products which were approved by the convention and which will be added to the N.A.P.A. line. The association also approved plans for a uniform catalog which will be issued to the trade shortly after New Year's. It will be a bound catalog and will be available for general distribution. Plans for such a catalog have been under advisement for two years.

The following officers of the association were reelected by the new board of directors: H. G. Root, president of the Automotive Parts Co. of Columbus, Ohio, president; W. W. Martin of the Superior Motor Parts Co., Pittsburgh, vice-president, and Charles H. Davis, executive secretary.

Besides Mr. Root and Mr. Martin, the following were elected to the board of directors: R. W. Boozer, Central Motor

(Continued on page 14)

### Rustlers Abandon Horse and Gun for Modern Methods

GONE are the days of the cattle rustler with a six-gun, a horse and wild yells and in his place is the modern cattle rustler with a motor truck.

At least that's what cattlemen of Osage County, Okla., say, telling how cattle are still stolen by rustlers, who load them two and three at a time onto a fast truck and get them away before they are detected.

These rustlers quietly rope the steer, pull him into the truck and are gone in the space of a few minutes. Stealing of this kind from large herds is still common in the vicinity of Fairfax.

### 100,680 New Buicks Built

DETROIT, Nov. 12—A new October record was established by the Buick Motor Co. which shipped 23,614 cars compared with 26,800 cars in September of this year and 23,000 cars in October last year. Since introduction of the new models Buick has shipped 100,680 cars.

### Graham-Paige Production

DETROIT, Nov. 13—Graham-Paige Motors Corp. manufactured 4921 cars in October, a new high record for the month. This compares with 3263 in October, 1926, previous high month. Production for first 10 months totaled 70,406 compared with 18,800 last year.

### Packard Monthly Record

DETROIT, Nov. 14—Packard Motor Car Co. established a new monthly shipping record in October, shipping 5802 cars, compared with 4354 a year ago and September shipments totaled 4800 compared with previous record month, August this year, of 5001 shipments. Ten months' shipments this year totaled 40,835 compared with 23,678 in corresponding period last year.

### Courtney Johnson Advanced

CHICAGO, Nov. 12—Courtney Johnson has assumed general managership of the Chicago Hudson-Essex organization to succeed R. L. Romaine. W. A. James, former advertising manager, succeeds Mr. Johnson as assistant general manager, and A. J. Eldred takes the position Mr. James occupied.

## Louis Meyer is A.A.A. Champion

Piles Up 1596 Points; Keech and Moore Take Second and Third

### FEWER BIG RACES

WASHINGTON, Nov. 13—Louis Meyer, a virtually unknown racing driver until he won the Indianapolis classic in May, has jumped into national prominence by winning the American Automobile Association speedway championship for 1928.

This statement was issued by the Contest Board of the A.A.A., on the basis of total awards in the major events run under the sanction of the national motoring body, which supervises and regulates official racing in the United States.

At the same time, the A.A.A. announced that Ray Keech of Philadelphia, who captured the world's speed record from Capt. Malcolm Campbell at Daytona Beach, won second place on the championship list, and Lou Moore, who placed second at Indianapolis, was third.

Meyer accumulated 1596 championship points for the year, while Keech won 915 and Moore 406.

A product of the Pacific Coast dirt tracks, Meyer won the acclaim of speedway fans at Indianapolis when he drove the entire distance of 500 miles without relief. He was also successful in winning the Altoona event on Aug. 19 and annexing second place at Salem, N. H., on July 4.

(Continued on page 14)

### R. N. Calfee Homeward Bound

R. N. Calfee, chairman of the board of directors of the Peerless Motor Car Corp., is homeward bound from Europe after a most successful business trip.

He is sailing from Naples, having visited practically every country on the Continent, and having secured a large volume of sales for Peerless cars from foreign distributors and dealers.

### Seattle Dealers Reorganize

SEATTLE, Nov. 13—The Seattle Automobile Dealers Association has reorganized with W. L. Eaton as president, A. S. Eldridge, vice-president; P. E. Sande, treasurer; Floris Nagelvoort, secretary, and E. S. Hoffman, past president, as managing secretary.



## Finance Men to Convene at N. Y.

Automobile Manufacturers,  
Bankers, Economists,  
to Talk

NEW YORK, Nov. 12—Continuing and stabilizing the prosperity of the automobile industry through sound instalment selling and the extension of the instalment plan into new fields and the problems arising therefrom will be the theme of the two days' session of the National Association of Finance Companies to be held at the Hotel Roosevelt, New York, Nov. 20 and 21.

Bankers, automobile manufacturers and financial analysts will lead the discussions, which will cover the relationships between manufacturers, merchants, banks and the companies which finance instalment sales. More than \$400,000,000 is invested in the business of financing instalment sales of automobiles and other merchandise in the United States alone, according to C. C. Hanch of Chicago, general manager of the association, who maintains that the present banner year in motor car production is made possible by the wide distribution resulting from the consumer credit supplied by the finance companies. More than sixty per cent of the automobiles sold last year were marketed through extended payment plans, according to his estimate.

Speakers include J. Gibson Jarvie, George E. Roberts, O. F. Meredith, Milan V. Ayres, George M. Graham, vice-

### *A Few Words to the Wise That Should Be All Sufficient*

WE are not weather prophets but we know where there are substantial dealer profits. About this time each year old man winter slips the unprepared a nasty surprise and, the prepared some nice business on tire chains, antifreeze, radiator covers and the like.

Each year sees chainless cars caught in heavy snow—unprotected cooling systems bursting—cold engines refusing to start. Stocking the appropriate winter accessories and selling them now will make many a dollar for the dealers and save many a dollar for your customers.

president of the Willys-Overland Co., who will discuss the relation of the manufacturer to the finance company, and Major E. V. (Eddie) Rickenbacker.

### Nash Makes 17,200 in Month

DETROIT, Nov. 13—Nash Motors production for October exceeded 17,200 cars, an increase of 10,000 over October, 1927; for 11 months ended Oct. 31, production was about 129,000 units.

### Auburn Production Record

DETROIT, Nov. 13—Auburn Automobile Co. of Auburn, Ind., reports the largest October business in its history with shipments totaling 1306 cars.

## Reo to Introduce New Automobile

Addition Will be Supplement to Flying Cloud; Lower in Price

LANSING, Nov. 12—Information has just leaked out to the effect that Reo is about to introduce a new automobile. No details are available except that the car is to be somewhat lower in price than the Flying Cloud and that it will supplement and not replace the Flying Cloud. Officials of the company were reticent about the new car but admitted that such a car was in process of going into production and stated that public announcement would be made about Dec. 15.

Those who have seen this car state that it is of unusually excellent appearance.

### Cadillac Production High

DETROIT, Nov. 12—"Cadillac and LaSalle shipments during September to distributors and dealers again exceed 5000 units," it was stated today by Lawrence P. Fisher, president of the Cadillac Motor Car Co. "Stocks in the hands of dealers are exceptionally low and in order to keep up with the increasing demand for our new models, October and November production schedules have been increased to maximum plant capacity.

"September sales and deliveries to consumers exceeded any previous month in the history of the company."

## The Automotive Calendar

### SHOWS

Albany, N. Y., State Armory, Jan. 19-26.  
\*Atlanta, Ga., Auditorium Armory, Jan. 14-19.  
Baltimore, 5th Regiment Armory, Jan. 19-26.  
Boston, Mechanics Bldg., March 2-9.  
\*Buffalo, N. Y., 174th Regiment Armory, Jan. 12-19.  
\*Chicago, National Coliseum, Jan. 26-Feb. 2.  
Cincinnati, Music Hall, Jan. 13-19.  
Cleveland, Public Auditorium, Jan. 26-Feb. 2.  
Columbus, Ohio, Columbus Auditorium, Jan. 18-26.  
Denver, Colo., Auditorium, Feb. 11-16.  
Des Moines, Iowa, Coliseum, Feb. 18-23.  
Detroit, Convention Hall, Jan. 19-26.  
\*Hartford, Conn., State Armory, Feb. 16-23.  
Kansas City, Mo., American Royal Bldg., Feb. 9-16.  
Los Angeles, Washington Park, March 2-10.

Louisville, Ky., Armory, Jan. 21-26.  
Milwaukee, Wis., Auditorium, Jan. 12-19.  
Nashville, Tenn., Hippodrome, January.  
Newark, N. J., Jan. 12-19.  
\*New York, National, Grand Central Palace, Jan. 5-12.  
Peoria, Ill., Feb. 5-9.  
Philadelphia, Commercial Museum, Jan. 12-19.  
Quebec, Can., Drill Hall, Mar. 16-23.  
Rochester, N. Y., Edgerton Park, Jan. 21-26.  
Saginaw, Mich., Auditorium, Feb. 27-Mar. 2.  
Salon, Automobile Salon, Inc., Hotel Drake, Chicago, Jan. 26-Feb. 2.  
Salon, Automobile Salon, Inc., Hotel Biltmore, Los Angeles, Feb. 9-16.  
Salon, Automobile Salon, Inc., Hotel Commodore, New York, Dec. 2-8.  
Salon, Automobile Salon, Inc., Palace Hotel, San Francisco, Feb. 23-March 2.

San Francisco, Civic Auditorium, Jan. 26-Feb. 2.  
Seattle, Feb. 2-10.  
Springfield, Mass., Municipal Auditorium, Feb. 25-March 2.  
St. Louis, City Market Bldg., Feb. 4-9.  
Syracuse, Feb. 4-9.  
Ottawa, Canada, Feb. 4-9.  
\*Washington, D. C., Washington Auditorium, Jan. 26-Feb. 2.  
Providence, R. I., Cranston St. Armory, Feb. 13-16.

### CONVENTIONS

American Society of Mechanical Engineers Annual Meeting, N. Y. C., Dec. 3-7.  
National Automobile Dealers Association, Palmer House, Chicago, Ill., Jan. 23-29.  
National Tire Dealers Association, Boston, Mass., Nov. 19-22.  
S.A.E.  
Detroit, Book-Cadillac, Annual Meeting, Jan. 15-18.  
New York, Annual Dinner, Hotel Waldorf-Astoria, Jan. 10.  
\*Will have special shop equipment exhibit.

November 17—Production and Factory Equipment Issue—  
*Automotive Industries*

## Motor Age Merges—

**P**HYSICALLY this is the last issue of *Motor Age*. Beginning with December 1, 1928, as has been announced previously, *Motor Age* will be merged with *Automobile Trade Journal*, the other oldest automobile trade paper, into a single outstanding monthly business publication. Your subscription to *Motor Age* will be completed by copies of the new modernized magazine.

While *Motor Age* with this issue does cease to exist as a separate entity, it is pleasant to realize that the tradition of vigorous service, accurate news recording and practical maintenance and merchandising help which has characterized this fine old publication since its birth in 1899 will not only be continued but rather reborn, revived and intensified in the new combined "*Automobile Trade Journal and Motor Age*."

*Motor Age* shares with *Automobile Trade Journal* the distinction of being "as old as the industry." Both started publication in 1899 and both have faithfully recorded the progress of this mammoth industry, from its inception, on through the various stages of its marvelous development. Long before many of the great names in the trade were known, these business

papers were recording and interpreting with painstaking effort the various changes that, in the earlier days, when the business was finding itself, followed one another so closely.

Editorially the new publication will render an unrivaled service to automotive retailers. It will be manned by the largest and most experienced staff ever concentrated on a single monthly automobile trade publication. In addition, it will command the services of the vast network of Chilton Class Journal correspondents, covering every key city in this and foreign countries.

It will be full of practical, useful ideas and information from cover to cover. The material will be presented in such a way as to make possible maximum use with minimum effort on the part of the reader. Its pages will be bright, attractive and modern, packed with important material concerning trade facts, methods and events.

Watch for the first copy, which will reach you shortly after December 1. Don Blanchard, editor of the new "*Automobile Trade Journal and Motor Age*" will be eager to get your comments on the new publication.

### Radcliffe Joins Gardner

ST. LOUIS, Nov. 12—T. F. Fowler, director of exports of the Gardner Motor Co. Inc., announced today that Charles C. Radcliffe, an automobile export man of wide acquaintance, has become connected with the Gardner company in the capacity of Continental European sales manager.

Mr. Radcliffe, an Australian by birth, has resided in the United States for a number of years, during which time he has made an exhaustive study of both the manufacturing and sales of automobiles.

### Made Sales Manager

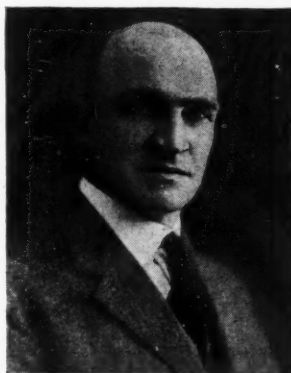
SPOKANE, Nov. 13—Guy L. Standish has been promoted to sales manager of the Hatch Motor Co., Spokane distributor of Chrysler and Plymouth automobiles.

### Van Pelt Resigns

CINCINNATI, Nov. 12—C. H. Van Pelt, general sales manager for the Cincinnati Ball Crank Co., has severed his connection with that organization as the result of a reorganization of that company's personnel. Mr. Van Pelt has been with the company 11 years as secretary and sales manager and during the last three and a half years has

held the title of general sales manager. He is known widely in the industrial field.

### Has Stutz Branch



W. J. Boone

**T**HE Stutz Motor Car Co. announces that W. J. Boone, one of the most favorably known automobile men in Chicago, has been elected president of the Stutz Chicago Factory Branch, Inc., succeeding F. D. Cerf, resigned.

### Marmon Places Big Order

ST. PAUL, Nov. 10—A contract for the entire requirements of storage batteries for the Marmon Motor Co. for the next year has been obtained by the National Battery Co., L. J. Shields, president, has announced.

The first carload of batteries probably will go forward this month to the Marmon factory at Elkhart, Ind.

Mr. Shields announced that the company, with headquarters and main plant in St. Paul, is planning to establish branches at Denver, New Orleans and Albany, N. Y., to augment its present organization of five factories and 22 branches throughout the country.

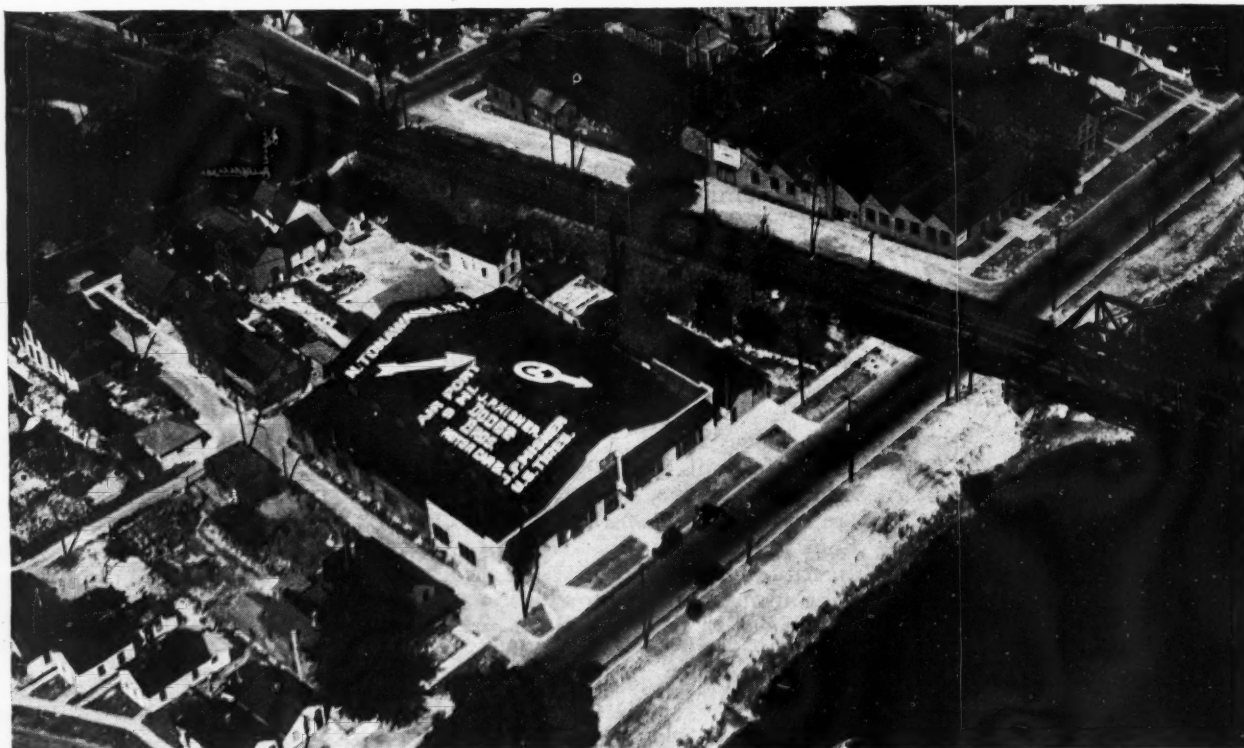
### Establish Factory Branch

SPOKANE, Nov. 13—Establishment of a direct factory branch in Spokane to serve the territory between Salt Lake City and Seattle, was announced recently by the Durkee-Thomas Corp. of San Francisco, manufacturer of all types of storage batteries.

Harold G. Gould will have charge of the sales department in Spokane, while Kenneth King will handle the warehouse and service end of the business. Both young men came to the city from the San Francisco office.

Quarters have been leased at W1212-14 Second Avenue.





### *This is North Tonawanda!*

*City's name painted in white letters on roof of Dodge Bros. Agency gives directions to Buffalo airport, as well as distance. The New York state aviation commission has requested all towns to indicate their identity in this fashion*

#### **Kissel Distributors**

**HARTFORD, WIS., Nov. 12**—The Kissel Motor Car Co. announces the appointment of three new important distributors in metropolitan cities, namely: Frank James Motors, Los Angeles, Sorenson Motors, Ltd., Winnipeg, Canada, and the Boston-Kissel Company, Boston. All three of these held their formal openings the latter part of October and reported great interest shown in the new Kissel White Eagle Series in their respective territories.

#### **Foreign Dealers Sign**

**CLEVELAND, Nov. 13**—Several important European and South American motor car dealers have just signed contracts to handle Peerless automobiles, according to word received at the factory in Cleveland from R. M. Calfee, chairman of the Peerless board of directors, and Walter Zimmerman, Peerless export manager, both of whom are overseas.

The new 1929 Six-81, announced by Peerless a short time ago, has struck a very responsive chord abroad, advices say. All of the new dealers have backed their belief in the car with substantial orders.

#### **Velie L-9 Airplane Engine**

**MOLINE, ILL., Nov. 10**—As a "big brother" to the M-5 radial airplane engine announced by the Velie Motors Corp. of Moline a short time ago, the company now is introducing the L-9, a nine-cylinder air-cooled radial engine

developing a maximum of 180 hp. at 1900 r.p.m.

The new engine is designed for use in four-place ships, and after 100 hours of block testing, it was installed in a Travel Air fuselage and a Monocoach, in which it cruised at 95 m.p.h. and reached a top speed of 125 m.p.h. fully loaded.

#### **Columbus Auto Show**

**COLUMBUS, OHIO, Nov. 12**—The annual Columbus Automobile Show will be held at the Columbus Auditorium at Front and Town Streets, January 18 to 26. The show will be given by the Columbus Automobile Dealers' Co., which is chartered under Ohio laws for the purpose of giving exhibitions. The committee in charge will consist of Harry B. Coen, chairman, Wilbur Winders, J. O. McDonald, H. M. McCord and D. J. Buckley.

As in past years the exhibition hall will be elaborately decorated for the display, which is restricted to passenger cars. All Columbus distributors and agents will be represented at the show by current models.

#### **Hogan Returns**

**SAN FRANCISCO, Nov. 10**—George Hogan, one of the pioneer executives of the automobile industry in San Francisco, who has been out of the business for more than a year and a half, has returned as retail sales manager for Butler-Veitch, Inc., Marmon distributors.

#### **C. I. T. Buys Another**

**NEW YORK, Nov. 12**—Commercial Investment Trust Co. has purchased the Carolina Credit Co., the largest finance company in the Carolinas. This new acquisition of the C.I.T. has resources of more than \$2,250,000 and maintains offices in Greensboro, Winston-Salem and Hickory, N. C.

This addition raises the number of C.I.T. offices maintained throughout the United States to 85 and places its resources in excess of \$134,000,000.

#### **Highway Information**

**OAKLAND, CALIF., Nov. 13**—The Oakland Chamber of Commerce has turned over to the American Automobile Association, for distribution at its 1016 offices in the East and Mid-West, 250,000 copies of a new road map showing the itineraries of the Lincoln and Victory highways across the continent and terminating at Oakland. Radio talks concerning these highways, will be broadcast from Pittsburgh, as a central point.

#### **Distribute Auburn**

**SAN FRANCISCO, Nov. 13**—R. S. Ricketson, zone manager for California for the Auburn Automobile Co., has appointed the Lloyd S. Johnson Co. here as distributors for Auburn automobiles in this territory. Lloyd Johnson, president of the company, has been the Duesenberg agent here for some years and will continue with that line also.



## Packard Profits \$21,885,416

Surpasses by 6 Million Best  
Previous Year Which  
Was 1926

NEW YORK, Nov. 12—Packard Motor Car Co. reports net profit for the fiscal year ended Aug. 31, after all charges, as \$21,885,416. This is equivalent to \$7.28 a share on \$10 par value stock. This compares with net profit of \$11,743,498, or \$3.91 a share, for the preceding fiscal year and with \$15,843,586, or \$5.27 a share for the year ended Aug. 31, 1926, which was the previous record.

Regular monthly dividends of 25 cents were declared, payable Dec. 31, Jan. 31 and Feb. 28, respectively, to stockholders of record on the 12th of the previous month. An extra dividend of \$1 was declared payable Nov. 30 to stockholders of record Nov. 15.

Sales by the company during the year amounted to \$94,677,390 as compared with \$71,659,188 for the previous year and with the previous record of \$77,363,954 for 1926.

Present business continues to be excellent with all indications pointing to its continuance.

### Spicer Moving to Toledo

DETROIT, Nov. 13—The Spicer Manufacturing Co. is in the process of moving its plant from South Plainfield, N. J., to Toledo, Ohio, and headquarters of the company will be established at Toledo about Jan. 1. R. C. Carpenter, vice-president of the Spicer company, declared at the N.A.P.A. convention.

*Advanced*



**R. E. Hill**  
**A**PPOINTED district sales manager of Hudson Motor Car Co., in the newly opened district office at Spokane, Wash. Mr. Hill was sent to Spokane from the Seattle zone office to take charge of the district around Spokane which extends into three states.

A new factory has been erected at Toledo and the company had expected to make the transfer before now, but the procurement of a large contract from the Ford Motor Co. has delayed the original plans, he said. His company is now manufacturing at the rate of 4500 shock absorbers a day for the Ford Co., under Houde patents.

## General Motors Buys Lamp Unit

Guide Motor Lamp Company  
Stockholders Vote to  
Sell

ROYAL OAK, MICH., Nov. 10—A further expansion of General Motors Corp. in the parts field is foreseen as a result of the purchase by the corporation of the Guide Motor Lamp Co. of Cleveland. The Guide Company which is one of the pioneers in the lamp field does a \$3,000,000 business annually and supplies several well-known automobile manufacturers.

Stockholders of the lamp company voted to accept \$913,690 for their holdings. They are to receive \$175 a share for the common and \$110 for the preferred plus accrued dividends for 30 days. According to H. J. Monson, president of the Guide Company, General Motors plans to operate the company with its present personnel. General Motors Corp. declined at this time to issue any statement regarding the purchase or its plans.

### Install Accounting Systems

MINNEAPOLIS, Nov. 12—Seven Northwestern states will be served from a new office opened by Motors Accounting Co., 418 Roanoke Bldg., Minneapolis, Minn. The states are Minnesota, North Dakota, South Dakota, Montana, Wisconsin, Northern Michigan. J. J. Nolan has come from Chicago with a staff of 12 accountants and auditors, who will visit the General Motors dealers to help start new accounting systems.

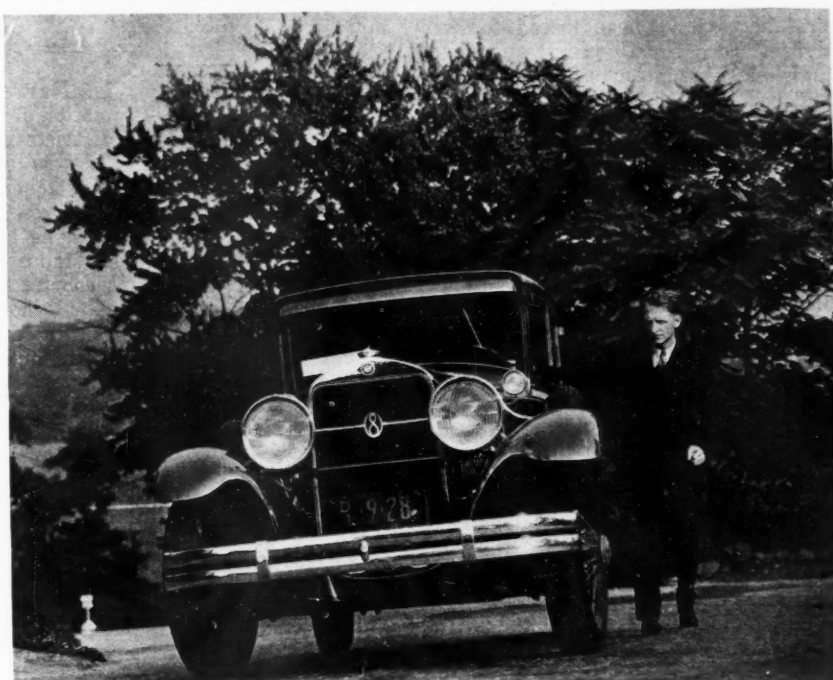
### Durant Executives Return

NEW YORK, Nov. 13—John S. Hunt, general manager of the Durant Motor Co. of New Jersey, and Carl M. Phillips, chief body engineer, arrived aboard the steamship Aquitania from Europe.

Mr. Hunt and Mr. Phillips went to Europe last month to confer with Mr. Durant in regard to the new Durant plant in Germany and to inspect European automotive plants. While there they attended both the Paris and London Automobile Shows.

### Freight Carriers Organize

DETROIT, Nov. 13—The Michigan Regulated Motor Freight Carriers Association, Inc., was formed in Lansing last week when truck operators from all over Michigan met at the Hotel Kerns. There were 40 charter members and officers elected were: C. A. Bishop, Grand Rapids, president; Ray Williams, Detroit, vice-president; K. A. Geieler, Bay City, treasurer, and secretary to be employed by the board of directors; board of directors: P. E. Genger, D. E. Doyle, Saginaw, Paul Sholton, Holland, F. E. Jones, Centreville, George Wilson, Kalamazoo.



The Studebaker President Eight climbing 125th Street hill in New York City, in high gear with the driver walking beside the car

## N.A.P.A. Reelects Executive Heads

(Continued from page 9)

Parts Co., Indianapolis; A. G. Lock of Campbell Motor Parts Co., Boston; H. M. League of Quaker City Motor Parts Co. of Philadelphia; Matt Lawson of the Lawson Auto Parts Co. of Birmingham, Ala., succeeding L. C. Benson of the Auto Parts Co. of Jacksonville, Fla.; A. C. Darling of the Standard Unit Parts Corp., Chicago; A. F. Baxter of Unit Parts Corp., Buffalo, and Douglas Hayes of the Vancouver Parts Co., Ltd., of Vancouver, B. C.

Dan Andrews of the Continental Motors Corp., was reelected chairman of the Manufacturers Advisory Board. Other members of the board who will serve this year are: C. C. Blanchard of the Borg & Beck Co.; K. H. Herrick of the Brown-Lipe Gear Co.; D. Gray Maxwell of the Asbestos Textile Co.; M. J. McCarthy of the Precision Products Co., and C. E. Hamilton of the Automotive Gear Works.

Various subjects which were taken up at the different meetings were: "This Matter of Obsolescence," by W. W. Martin; "Operating Costs," by H. T. Root; "Machine Shop Operation," by R. W. Booser; "Shop Equipment Sales," by Douglas Hayes; "Our Catalog and Advertising Program," by E. J. Felt of Buffalo, advertising counsel of the N.A.P.A.; "Adequate Jobber Distribution," by A. F. Baxter of Buffalo, and "The Trend of Volume," by Executive Secretary Charles H. Davis.

At the annual banquet Oct. 31, Walter Boynton, Detroit, editor of *Automotive Daily News*, and Leon Banigan, editor of *Motor World Wholesale*, were the speakers. D. Andrews of Continental Motors Corp., presided as toastmaster.

### Reo Speed Wagon Sales High

LANSING, Nov. 10—October was the fourth biggest month in the history of the Reo Motor Car Co. from the standpoint of retail Speed Wagon sales, according to a statement just released by Carl Parker, assistant sales manager of that company. "Not only are our 1928 Speed Wagon shipments to date nearly one-third greater than for the entire calendar year 1927, but they exceed by a substantial margin the total Speed Wagon shipments for any previous full year. Still more significant is the fact that for the past two months retail sales have been considerably in excess of factory shipments."

### Spicer Reports Profits

SOUTH PLAINFIELD, N. J., Nov. 12—Spicer Manufacturing Corp. and subsidiaries report for nine months ended Sept. 30, 1928, profit of \$1,245,388 after depreciation, etc., but before Federal taxes, comparing with \$1,023,198 in first nine months of 1927. The profit for September quarter was \$390,433 before Federal taxes, against

### Will Test Trees as Well as Cars in Proving Grounds

+--+--+

COOPERATING with the Indiana State Forestry Department, The Studebaker Corp. of America has begun a project involving the reforestation of half of its 800-acre Proving Ground. Norway Red and White Pine and Norway Spruce, Red Oak, Poplar and Walnut will be planted to the number of approximately 450,000 seedlings. It is the intention of the forestry department to utilize the project as a laboratory to study the growth of the different seedlings.

While it will take some of the trees as much as 50 years to mature, the information obtained by studying them over this period of time will have an important bearing on the reforestation of other parts of Indiana.

\$434,687 in the preceding quarter and \$309,567 in the third quarter of the preceding year. The company has outstanding 313,750 shares of no-par value common stock. The 8 per cent preferred stock was called for redemption July 1, 1928.

### Plan New Aviation School

CHICAGO, Nov. 13—Another step toward making Chicago an aviation center has been taken by a group of men back of the 800-acre air project out in Du Page County, a mile northwest of West Chicago. Ayres Boal, one of the group, announced yesterday that several acres have been leased to Air Activities, Inc., for 10 years, and that a high class aviation school will be established.

The officers of Air Activities, Inc., are: Ayres Boal, president; Harry C. Edmonds, vice-president; Laird Bell, treasurer, and Stuart Templeton, secretary.

### Trenton Auto Show

TRENTON, N. J., Nov. 13—Arrangements are now under way here for the 1929 show of the Trenton Automobile Trade Association. The event will be staged the week of Feb. 22, Washington's birthday anniversary, in the Armory, according to John L. Brock, president of the club.

### Black & Decker Man Here

TOWSON, MD., Nov. 10—J. V. Franklin, salesman with the British office of Black & Decker, Ltd., is in the United States to spend some time at the Towson factory of the Black & Decker Mfg. Co. and in the various automotive and industrial centers of the country. He also attended the Automotive Equipment Association show in Chicago.

## Louis Meyer is Champion

(Continued from page 9)

The Contest Board said that Keech, who drove over the sands of the Florida resort at 207.55 m.p.h. in capturing the world record for one mile, was a consistent performer all season. He won the championship events conducted over the dirt tracks at Detroit and Syracuse, placed first at Salem on July 4, won fourth place at Indianapolis, and finished sixth at Altoona, Aug. 19.

There was a decided falling off in major races during the year, with but three of the speedways running events, while a fourth speedway event was abruptly stopped by a series of accidents.

Championship races upon which the basis of the American Automobile Association award was made, were held over the famous brick track at Indianapolis on May 30, the Detroit one-mile dirt track on June 10, the Salem board speedway on July 4, the Altoona board speedway on Aug. 19, the Syracuse one-mile dirt track on Sept. 1, and the partly finished event at Salem on Oct. 12.

In addition to the "big three" on the 1928 championship list, George Souders placed fourth, winning all of his points when he finished third at Indianapolis. Souders will be remembered as the Purdue University student who won the 1927 racing classic.

### B. & S. Advances H. E. Oberg

Howard E. Oberg, who for several years has represented the Billings & Spencer Co.'s Machinery Division at Detroit, has been called in to the main office at Hartford to become sales manager of the Machinery Division. Mr. Oberg expects to spend a good portion of his time on the road.

### Hudson Advances F. L. Barrett

DETROIT, Nov. 12—Promotion of F. L. Barrett to manager of districts for the Hudson Motor Car Co. was announced by Courtney Johnson, general sales manager. While Mr. Barrett is one of the youngest executives, he has seen 20 years' service in the industry and is known from coast to coast. He has been retail sales manager, wholesale representative, distributor and manager of branches for prominent automobile companies.

### Reo Makes Appointments

LANSING, Nov. 13—Three important appointments are announced by C. E. Eldridge, general sales manager of Reo Motor Car Co. J. H. Lemons, manager of the company's branch at Houston, Tex., has been appointed sales manager for the western division. E. G. Poxson, assistant sales manager, has been made sales manager of the eastern division, and L. C. Moore, heretofore sales correspondent, has been advanced to the position of sales manager of the New England division.



## Northern Illinois Trade Assn's Meet

### Intensive Sales Congress of Three Assn's Ends in Banquet

Nearly 500 automobile dealers and their sales managers in the metropolitan Chicago area gathered at dinner at 6:30 o'clock at the Congress Hotel, Thursday night, Nov. 1, to take stock of the Illinois automotive situation at a meeting held under the auspices of the Chicago Automobile Trade Assn., the Illinois Automotive Trade Assn. and the National Automobile Dealers' Assn. The meeting marks the completion of a three weeks' intensive Sales Congress campaign held by the three organizations in northern Illinois to improve the methods of selling and servicing automobiles.

J. R. Histed, vice-president of the Hudson Motor Car Co. of Illinois, presided. A "True Confession Hour" was presented by a battery of "four-minute" speakers, all heads of large automobile agencies in Chicago, all of whom took part as speakers in the Illinois Sales Congress campaign. Thomas J. Hay, Chandler distributor, discussed "Why I Am in the Automobile Business." B. G. Sykes, Graham-Paige distributor, "What I Think of the Business." W. E. Butler, Reo distributor, "Comparisons of the Automobile Business With Other Business." C. E. Gambill, Hupmobile distributor, "Pitfalls for Dealers." Claude H. Paxton, Willys-Overland zone manager, "Dealer Cooperation." J. N. Kellerman, sales manager, Pierce-Arrow Branch, "Sales Development."

H. D. Bullock, Gaylord E. Ford and G. W. Derr, sales representatives of the National Automobile Dealers' Association, were introduced. C. W. Coons, secretary-manager of the Illinois Automotive Trade Assn., discussed the 1929 legislative program ahead of the automobile industry in Illinois.

### Sim Made Dodge Adv. Mgr.

DETROIT, Nov. 13—Appointment of Frank N. Sim as advertising manager for Dodge Brothers division of the Chrysler Corp. is announced by company officials. Mr. Sim's first connection with the industry was in 1913 when he became assistant advertising manager of Timken Detroit Axle Co. He became head of the department in 1915. Four years ago he became identified with Dodge Brothers as a field representative and recently has been Detroit district representative.

### Garage Management Course

BOSTON, Nov. 12—A University extension course in garage management has been organized at the Massachusetts Art School, Exeter and Newbury Sts. The first meeting was held Friday, Nov. 2, under the instruction of Glenn H. Whitham, manager of Charles Street

Garage and Cambridge Street Garage. The enrollment charge for the eight lectures is \$4. This is a new course which has been prepared in answer to an insistent demand. It is intended to present management methods which have been applied successfully. Emphasis will be placed on the solution of problems confronting the small garage manager. A feature of the course is the opportunity offered for class discussion.

### Parking to be Banned?

NEW YORK, Nov. 12—New York City will soon find it necessary to ban all parking in the downtown congested areas and to construct elevator and ramp garages for the storing of cars during business hours, in the opinion of Lee J. Eastman, president of the Packard Motor Car Co. of New York, who has just returned from an extensive visit to several western and middle western cities during which he inspected their traffic control systems.

### Muller Succeeds Korn

PASSAIC, N. J., Nov. 12—William H. Korn, president of the Korn Motors Corp., Passaic County distributor of Oakland and Pontiac automobiles, has resigned, and William Muller, general manager, has been elected to succeed Mr. Korn as president of the company.

Mr. Muller said that the reason for Mr. Korn's resignation is ill health. Mr. Muller has been associated with the company for almost six years and is in a position to continue the policies that have proved successful in the past.

### Dodge All-Time Record

DETROIT, Nov. 13—According to John R. Lee, general sales manager, Dodge Brothers set a new all-time record for October shipping 6840 more cars and trucks from the United States and Canadian plants than October last year. Five weeks' period ended Oct. 27 dealers report sale of 21,396 cars, a new all-time record.

### Executive to Publish Book

ST. LOUIS, Nov. 12—R. A. Rawson, one of the best known figures in the industry, having risen in the short space of 12 years from salesman on commission to the general sales management of two companies, is the author of a very comprehensive treatise on the sales and service phase of the automobile business, which will be published shortly.

### Frazer Hurt in Collision

DETROIT, Nov. 12—J. W. Frazer, general sales manager of the Chrysler Corp., is recovering from painful injuries sustained the other day when his automobile figured in a collision with a pie truck. Mr. Frazer and his chauffeur, who was driving the machine, were both rendered unconscious and passersby removed them from the wrecked automobile just before it burst into flames and was destroyed.

## Chevrolet Brings Out 6-Cyl. Model

### On Display in New York and Detroit Nov. 24; Jan. 1 Delivery

DETROIT, Nov. 12—Production is now under way on a six-cylinder Chevrolet to displace the present four-cylinder model. The new cars will be on exhibition in Detroit and New York, Nov. 24-29; Washington, D. C., Chicago and Los Angeles, Dec. 1-6, Cincinnati, San Francisco and St. Louis, Dec. 8-14; Atlanta, Dallas and Portland, Ore., Dec. 18-22. Cars will be available for delivery to customers Jan. 1.

Fundamentally the chassis is unchanged except for minor refinements and greater strength for the more powerful engine. The engine will have a bore and stroke of 3 5/16 by 3 3/4 in., giving a displacement of 194 cu. in. and developing a maximum brake horsepower of 46. The conventional Chevrolet overhead valve mechanism is retained. The appearance is more attractive than formerly. Prices are only \$30 higher than on the four-cylinder cars for open models and only \$10 higher on the closed cars, the coach for example now selling for \$595.

### DeBow Durant Western Manager

DETROIT, Nov. 12—The appointment of Jack DeBow as western district manager of the Durant Motors Corp. with headquarters in Lansing, is announced by T. S. Johnston, assistant to W. C. Durant, who has been in Lansing conferring with sales officials on company policies. Mr. DeBow, previous to the new appointment, was assistant to Thomas E. Jarrard, who has resigned as sales manager of the Durant Motor Corp. of Michigan, to become sales director of the Marmon Motor Car Co.

According to Mr. Johnston, Mr. DeBow will begin at once to increase his western sales organization including the opening of a new branch at Omaha, Neb. The sales policy of the Durant Motor Corp. of Michigan except for minor changes will continue as heretofore. L. D. Haas has been promoted to the position of assistant to Mr. DeBow and Henry Day will continue in charge of sales for the local territory.

Under Mr. DeBow's supervision is all the western territory, including the following factory branches: Chicago, Milwaukee, Minneapolis, Fargo, Denver, Dallas, St. Louis, Cincinnati and Cleveland.

Mr. Johnston has with him in Lansing his entire executive sales division and is establishing policies that have been carried out at other Durant plants with recognized success.

Members of the Durant organization are to gather at a dinner at the Hotel Olds Friday evening as a farewell to Mr. Jarrard, who is joining Marmon.



# AUTOMOBILES



**B. F. Mahoney**

**C. A. Lindbergh**

**N**OT infrequently I have occasion to address various bodies of men on some phase of the great subject of aeronautics. As frequently as I speak, some one asks:

"What effect will the rapid growth of aviation have on the automobile?"

The question is phrased in several ways. Some interlocutors think in terms of dealers' problems, others of the broader economic phases of the two industries and the uses of these products in transporting people and goods from place to place. Yet all come to the fundamental consideration: will airplanes help make automobiles more useful or usurp some of their present functions?

Major C. C. Moseley, vice-president of Western Air Express, Inc., pointed out to the Society of Automotive Engineers at their Los Angeles meeting that, "those engaged in the business of air transport haven't a word to say against the automobile, or the railroad train or the steamer. We feel, in fact, that they are all friends of ours, but we do want all people to realize that in air travel over established commercial routes and upon which licensed airplanes are operated by licensed pilots, the safety element is as great as that in any other means of transport."

The feeling is mutual, I am sure. Automobile dealers express their opinions in a concrete manner by "taking on" airplane lines and offering them for sales from their already established salesrooms. Automobiles have definite functions. Airplanes meet definite needs. Both fields of service are expanding. There is no conflict.

*Each Has Its Own  
Distinctive  
Field of  
Service*

What the future holds is not entirely conjecture. From a passenger point of view, many people will cling to the automobile as their chief means of conveyance. While many men have proclaimed the "air-mindedness" of the United States to be a fact, it is yet only partially accomplished.

As a freight carrier, the airplane of today cannot go beyond certain limits. I believe it will continue to be a carrier of limited cargo. By the very nature of the problem involved in aerodynamics, space must be conserved, weight and bulk must be combined in a certain ratio for air transportation. Gold bullion may be carried economically by air, but not feather mattresses!

I argue neither for nor against the airplane as against the automobile. Who would suggest that planes can perform useful service within a city? Or that automobiles can carry passengers from New York to San Diego in time competition with airplanes? Of course the cost factor is important at present, but this will become a problem of less import.

Fortunately for aviation it can lean on the automobile industry for experience and training. Expansion in many branches of aviation follow the accepted principles of the automobile business. I have in mind a new concern at Los Angeles. The proprietor earned his fortune through the medium of several automobile service stations. Now—along the same lines—he prepares an "all purpose" field.

There you may have your plane painted; your gas and oil changed; motor overhauled; in fact, any service that has to do with airplanes, including purchasing and learning to fly them. The idea was born in one of his automobile service shops and he keeps a fleet of automobiles which pilots and plane owners may hire while in the city.

The airplane begins its work where the automobile quits. The situation resembles in no sense that of the automobile and the horse of 20 years ago. Automobiles or other motorized equipment can do virtually all the work a horse can perform—more speedily and economically. No one would venture the rash prediction that airplanes could substitute for automobiles, however, unless the air-vehicle develops into a combination air-

# AND AIRPLANES

By

**B. F. MAHONEY***President, Ryan Aircraft Corp.*

*Modern filling station; planes are serviced on one side, cars on the other*

land machine of which I doubt even the most fanciful inventor has dreamed.

Automobile-minded people will supply the largest market to airplane manufacturers. Dealers with whom I have come in contact believe the public has become sufficiently air-minded to make profitable their efforts in the direction of selling planes. Of course there is a strong and psychological relationship between the automobile- and airplane-minded and, though that relation may assert itself now only in isolated cases, the isolation will grow less and less. We will have to thank those who received their first training in the mechanics of the automobiles and their experience in operating them for providing the broad aviation market.

From a business point of view—oddly enough—automobile dealers will furnish possibly the most important sales contact for airplane makers. The many contacts of dealers with the public of their particular territories will prove valuable in furnishing contacts in the newer field.

Merchandising of airplanes involves about nine-tenths of the merchandising principles to be found in the automobile field. I note that automobile dealers who add airplanes to their sales line use the same management, the same sales policy, same office personnel and the same financing lines.

Of course if the dealer be not a licensed pilot, he would employ one to demonstrate his planes. Through

the pilot, the dealer maintains close contact with everyone connected with the local or nearest airport, and through his salesmen learns of prospects. In the majority of cases, these prospects are drivers of automobiles.

I cite these things, not to show dealers how to make profits by handling airplanes but to illustrate the naturally close physical and psychological relationship between the two types of transportation. Because the dealer already possesses 85 per cent of the necessary plant with which to operate and because of the advanced character of airplane transportation, he is the logical agency through which the advance of progress from one type of motivation to another should be accomplished. This is especially true because the fundamental principles of distribution and economics are the same in both fields.

No doubt the average automobile merchant at some time has wondered how the airplane will fit in his scheme of selling transportation. He already offers transportation, but how about the NEW means of getting about?



*A bus serves as the night carrier for an air line*



# AUTOMOBILES AND THE AIR

In analyzing the possibilities of air travel the men who deliver cars to their purchasers stand where the livery stable proprietors stood a quarter century ago—at the threshold of pioneering. No successful automobile wants to pioneer a new line. He has already learned his lessons. The next consideration to enter his mind is that, in selling airplanes, he is flirting with the undertaker.

These two apparent reasons seem sufficient to drive the idea from his mind, so the majority have dismissed the subject, "for the present." There have been exceptions, however, just as some of those who in 1905 kept horses for hire recognized the possibilities in automobiles, and today are comfortably wealthy.

Those identified with the automotive industry who have opened their arms to the airplane and thus publicly admit the airplane will not "ruin their business," but on the contrary would stimulate it, embarked in the airplane "game" shortly after Colonel Lindbergh made his epochal transatlantic flight. After that hop, the "game" began to take on the characteristics of a "business." At the close of 1927 total sales investments in the United States, exclusive of manufacturers, represented \$7,053,650 and net income from eight profitable lines in 1927 was \$1,340,358. No doubt, as this appears, these figures will be doubled.

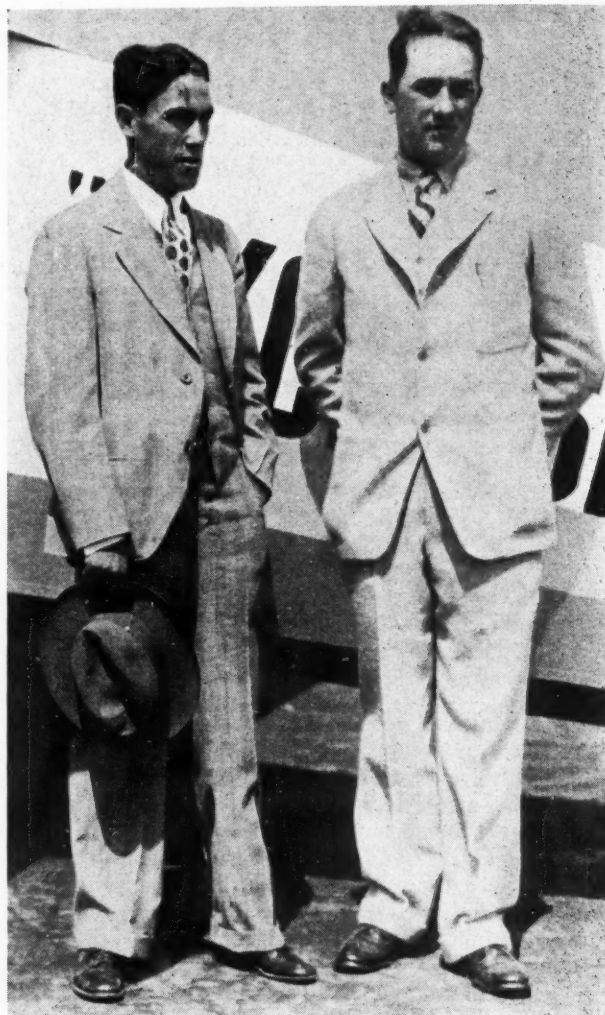
One can only conjecture how many miles per day all the automobile in this country travel. The airplane mileage would seem small indeed by comparison, yet in July of this year there were 653,000 air mail miles flown. A more recent report places the daily figure at 31,240, or nearly 1,000,000 miles a month. Ordinary commercial and private pleasure flying would make these figures even more impressive.

Men who have spent much time in developing automobiles and airplanes will be acclaimed by future generations as pioneers in what is destined to be the world's greatest era—the air era. Communication and transportation always have been factors in welding peoples into an homogeneous whole. Automobile and railroads exerted their important influences and now aviation has brought remote sections of the country within a few hours of each other.

Airplane manufacturers have torn a leaf from the book of automobile experience. They realize that travel by air must be made as comfortable as possible. Even this early in air development people are unwilling to be packed like sardines in open planes. They want comfortable if not luxurious upholstery, food and toilet facilities and such other comforts as can be provided.

What is the result? Where the automobile utilized an element—the earth—on which human life normally exists, the airplane makes use of an element—the air—where humans do not exist other than by some manufactured support. And the airplane adds to the bare physical support the comforts of a Pullman car.

In combining speed and comfort airline operators have also succeeded in sending their planes from city to city on schedules rivaling in consistency those of bus lines and railroads. Western Air Express, Inc., operating between Los Angeles and San Francisco, has proved that an air passenger line can be operated on an exact schedule and can, without the assistance that would come from the handling of air mail, be a financial success. The giant Fokker monoplanes operate with an on-time schedule rivaling that of the finest railroad.



*The late Capt. Emilio Carranza and B. F. Mahoney*

The trip has been made in three hours, whereas it takes the train 13 hours to cover the distance.

Automobile companies recognize the limitations of their vehicles. Airplane operators admit the inadequacies of the airplane. Railroads have not increased the speed of their trains materially in several years. What, then, will be the solution?

Each mode of conveyance will continue to find expression in those services it can offer to better advantage than the other two. None will be limited because of the others. Does anyone suggest the railroad has suffered seriously because of automotive development? True, problems have arisen from competition between the two. No doubt similar questions will perplex airplane-rail-automobile operators in the future. Just as has been the case in the past, however, they will be solved.

The time may come when the airplane will take on some form to enable it to compete seriously with the automobile, but this I doubt. Planes cannot park on city streets. The very nature of their alighting and taking off, the very fact that they would come down on the heads of those who use the streets, would forbid this, even could the fantastic idea be entertained on other grounds.

*(Continued on page 42)*





# His ONE PRICE

*Plan Sells Used Cars*

BY JAMES GRANT

*Scott Clark, whose one-price policy of selling used cars has proved successful*

**T**HE amount of money that Scott Clark, Clark Motor Company, Studebaker dealer at Hutchinson, Kansas, lost on his used car operations during 1927 ran into the five figures.

This year, as this article was written, he had completely reversed the situation. Instead of being in the "red" on his used car operations he had made a net profit of \$1,076.

In accomplishing this seemingly sleight-of-hand performance, Clark used two simple and fundamental policies of merchandising. First he studied his used car market more carefully and learned what makes and types of used cars were in demand. His next step was to locate the owners of such cars and sell them either a new Studebaker or Erskine. Their cars were taken in as part payment and because they were in demand as used cars he was able to move them quickly.

Secondly, he checked his methods of purchasing the owner's car. He learned that by checking each used car more carefully he could get them at a price that would give him an even chance of selling them at a profit.

To obtain a used car at a price that will give the dealer an even break of selling it at a profit means that the dealer must know two things, as Clark sees it.

"The dealer must know his used car market and must know each car," Clark says. "If he doesn't know both of these things well he is fighting a losing battle from the start. The dealer ought to study his used car market just as carefully as a ball player scans the batting averages.

"Knowing the car will prevent the dealer from giving too much or too little. It is one way in which the dealer can be fair to the prospect and fair to himself.



*"No dealer can tell the condition of a car merely by kicking the tires," says Scott Clark*

## HIS ONE PRICE PLAN SELLS USED CARS

Knowing the market enables the dealer to secure those cars which will bring a quick sale. It is a guarantee against the used cars piling up.

"Both these things are equally important. They go together and if the dealer only knows one he isn't going to make the progress that he would if he knew both."

When a used car comes to Clark that means a quick resale, it is put through its paces. Clark does about 95 per cent of the appraising. If the motor sounds all right Clark takes it out, shifting gears frequently to detect noises.

"Usually the dealer will find," he said, "that when he does this the gears will sing that familiar song 'Darling, I am growing older.' He will be surprised at the amount of money that such a road test can save. A careful check of the upholstery may reveal that it needs repairing in several places, that two new tires are needed and that the leaves in one or two of the springs are broken.

"No dealer can tell the condition of a car by kicking the tires, opening and closing the doors and bouncing the car up and down."

Clark checks every part of the car before he names the price he is willing to pay for it. As he checks its condition he notes the amount of money that it will take to put the car in good running condition. Then he totals the various amounts. This total is deducted from the amount he knows the car will bring on the open market.

The difference is the price at which he will purchase the car.

He doesn't compromise a cent. His first price is his last price.

This "one price to all" policy applies equally well to the selling price of the new car. Here the first price that Clark mentions is the price which the prospect must pay if he is to purchase the car in question.

Clark hit upon this "one price to all" policy because, as he says, he wanted all Hutchinson to know that he was conducting his business on an absolutely fair and square basis, and that he wasn't using any so-called horse-trading tactics.

He wanted to build confidence in his firm in order to help his salesmen sell more cars—new and used. It was difficult to get the public to accept the policy at first. They looked for the "joker," but as they came to deal with the Clark Motor Company they placed their approval on the policy. It was hard for the salesmen also accepted the policy. But they came to learn that it did help them sell more cars and that it helped mightily to break down the wall of reserve around the buyer.

Confidence was built in the firm and is being built today. The list of satisfied owners and boosters for the Clark Motor Company is growing daily.

There are still some residents of Hutchinson who do not know that the rule was made to be kept, as the following incident will indicate. This dealt with a prospect who wanted to purchase a used four-cylinder car which Clark had listed for \$325. The prospect offered \$300 cash with no trade-in. He was told that the price was \$325. Next he offered \$310 and then \$320. Each time his offer was refused.

Finally, "I'll split the difference," he said. "I'll give you \$322.50 and if you don't take that price I'll walk out the door."

He did walk out. The next day the car was sold for \$325 and to a prospect who knew that \$325 meant \$325.

There are some dealers who might say that Clark did not do the right thing and that he should have accepted the offer of \$322.50 or \$320. They might say that it cost Clark far more than the difference to keep that particular car in stock. Perhaps they are right, but Clark is willing to wager that the prospect who walked down the street knows that the Clark Motor Company does business on a sound basis and that he will pass that information along to his friends. In the final count this means more business.

Clark can cite many instances where this "one price to all" policy has been directly responsible for new car sales. The reason it has, he says, is because the public feels that the dealer who employs it is "shooting straight," and that they are certain of getting dollar for dollar value from him.



One of the largest autumn driveaways in Hupmobile history left the factory recently as a result of the visit to Detroit that day of 55 Philadelphia Hupmobile dealers. All the visitors took back one or more of the 1929 Century model sixes or eights. The party was headed by Paul I. Harper, of Harper & Harper, Hupmobile distributors in Philadelphia.



# 12—

## WAYS TO *Sell* THE *High-Priced* ITEMS

By MANDUS E. BRIDSTON

**O**F course there is more profit and pleasure in selling quality, high-priced merchandise. Even though the profit margin were the same, the far-visioned retailer knows that the added value and customer satisfaction is worth more than the added efforts necessary to overcome price resistance.

For price resistance there certainly is! Price cutters on every hand, along with mail order houses and chain stores, have made the buying public price conscious. There are so many things that the buying public wants, and wants badly, that there is a great temptation to buy cheaply to make the dollar reach around. The dealer who can continue to sell quality goods at fair prices in the face of this situation, not only protects the permanency of his business but is doing the public a real favor.

But it's a real job, though the alert dealer need have no fear of the price cutter. A large tire dealer in Vancouver, Washington, recently bemoaned his failure to sell high-priced merchandise because of the competition offered by a retail store of a mail order house located in his city. At the time he was awaiting advice from an editor of a trade publication to whom he had outlined his problem. Other merchants in the same predicament buckle down to the hard job, and to their gratification find latent means and methods are developed with the added effort.

Following are twelve specific ways used by dealers in various lines to throttle the price bogey. They are all tried and proved worthwhile, though some may seem to conflict in principle.

1. The first essential in meeting low-price competition is the right mental attitude toward the question of price. If the dealer does not succeed in developing the right mental attitude in his sales people, other efforts will fail. If the salesman isn't convinced without the shadow of a doubt that the goods he sells is a "better buy" despite the higher cost, there is nothing he can say or do that will convince the customer. Merely repeating stock arguments won't do the trick. They lack the ring of sincerity. That means that the merchant must patiently and everlastingly analyze the product from the consumer's standpoint to his sales people. A salesman with a penny-wise, pound-foolish habit of thought can't effectively sell quality goods at higher prices.

He, himself, favors the cheaper merchandise. If that attitude can't be changed, let a salesman go, regardless of his many other qualities.

2. The salesman must be taught to consider the question of price from the standpoint of the customer's ability to pay, and not judge it by the size of his own bank account. He must realize that a twenty-five dollar purchase may not mean more to the customer than a twenty-five cent purchase means to himself. To a man who needs the product and can use it advantageously, price is a secondary consideration. A salesman may be awed by an automobile that sells for \$6,000 and wouldn't think of buying it for his own personal use, but he must be impressed with the fact that the man of means takes this price very much for granted because it gives him transportation in accordance with his social and business position.

3. Price competition makes the merchant alert to find new and unemphasized uses he sells at a higher price. Besides utility of an obvious nature, there is comfort, pride of ownership, beauty, safety, convenience or what have you. For instance, a dealer selling high-priced radios stresses the importance of his equipment as a home ornament, as well as a mechanism of entertainment. It develops the musical talents of children and cultivates a taste for the best music. Incidentally, he discriminates in his arguments between those that might prefer jazz to classics. A question or two gives him the right cue. There are dozens of reasons why a family should have a good radio, aside from the obvious sales arguments, but the customer is usually more interested in WHAT IT WILL DO FOR HIM, than he is in the mechanical ingenuity in its construction.

4. The successful sales person of high-priced goods is nonchalant about the price tag. The inflection of the voice tells the story. If he says "five dollars" in an off-hand, matter-of-fact tone, without a trace of apology or a question mark, it's a good sign that he knows his onions. One salesman, realizing the subtle effect of words and manners, will speak a careless "twenty-five" without batting an eye, while another will pronounce a respectful, awed "twenty-five dollars," and the inflection of his voice



## 12 WAYS TO SELL THE HIGH-PRICED ITEMS

tells plainer than words that he thinks that entirely too much to pay for such an article. The implication is not lost on the customer. "Three five" sounds a lot less than \$3,500."

**5.** Handle high priced merchandise with the greatest care; it impresses the customer. A tire dealer in Oregon uses a unique method of making a sale of his best grade tires, which can be adapted to any line. When a customer comes in and asks for a cheap tire, the dealer goes to the rack, grabs the tire and heaves it to the floor with a bang. "There it is," and he gives it a vicious kick. "Not as good as the best, but worth what we ask for it, which isn't very much." And he emphasizes his statement with several kicks about the sales floor. With every kick, the value of the merchandise is lowered still more in the estimation of the customer.

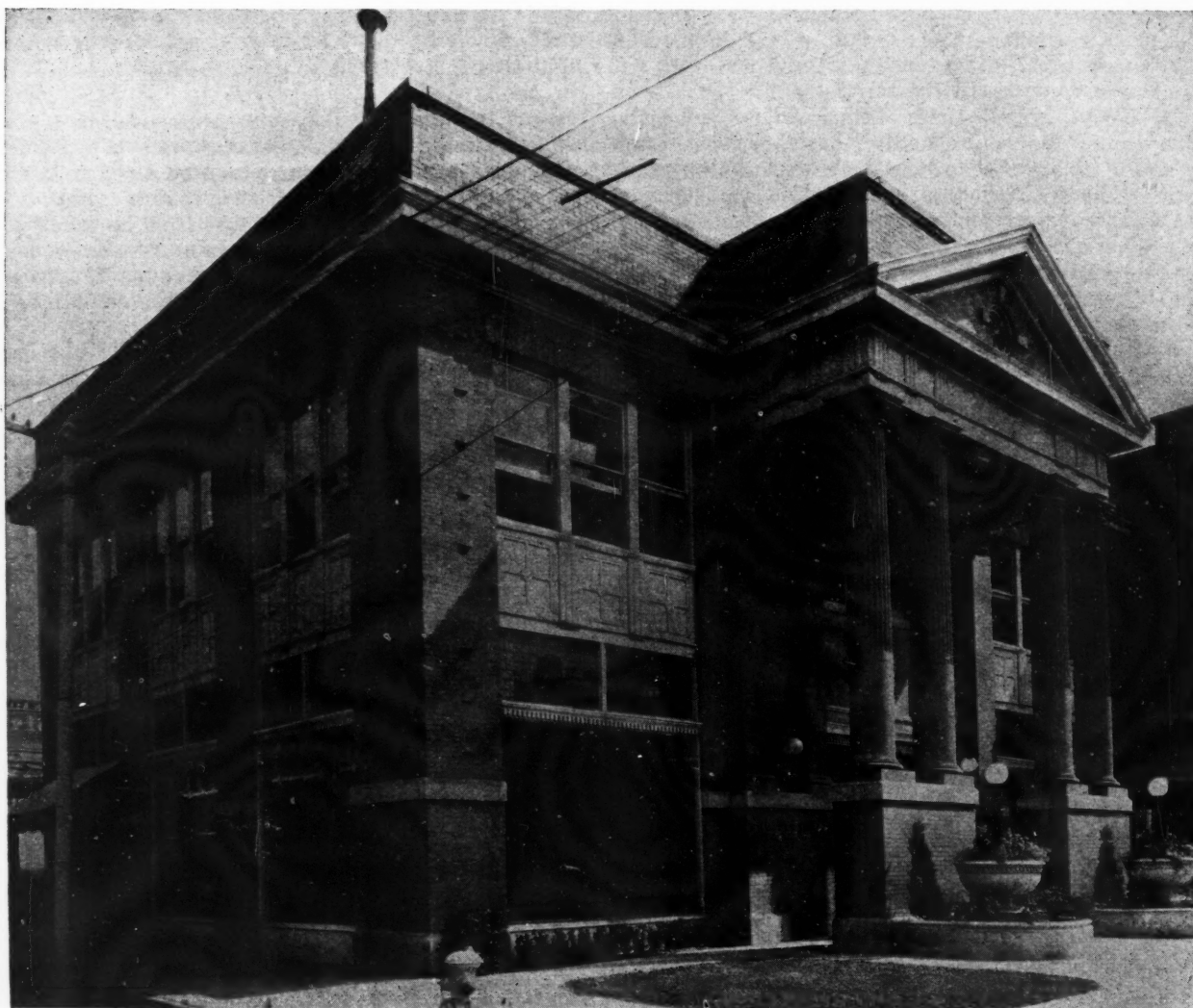
Then this dealer goes to another rack and brings forth a tire that is worth twice as much and will give three times as much service. He carries it carefully to the customer, and, as he virtually caresses the treads he launches a eulogy of its quality, giving one

reason after another why it is the best tire to buy. Such respectful handling of the tire impresses the customer as much as the sales argument. And he buys! Over 80 per cent of this dealer's volume is in high-price merchandise that gives satisfaction and a fair profit to the dealer.

Certainly the customer who buys a spotlight, windshield swipe, tire gage or what have you, is equally susceptible to like reactions. An accessory, carefully laid on the counter in a handsome container, seems more desirable than one tossed carelessly for inspection.

**6.** The customer should be taught to look for a nigger in the woodpile when he is offered good looking merchandise at a lower cost. It's either a bait or a fraud and the merchant who enjoys public confidence does not find it difficult to impress his customers with the fact that he knows merchandise and the price it should be sold for. No one wants to buy goods that are not right, and the suggestion that the low price is an indication of this will bear fruit.

*(Turn to page 41, please)*



*An outstanding example of modern automobile sales building architecture is the home of the Automobile Sales Co., distributors at Dallas, Texas. R. L. Ferguson is president of the company*

EC Reid



A MOTOR AGE IMPRESSION = J. M. WEAVER  
Gen. Sales Mgr. - Keasbey & Mattison Co.



# Make Them WANT to

## Neuffer Goes Out of His Way to Make the Customer Feel at Home

IT is our ideas that to a great extent make or break us. And the ideas that are used by service station managers sometimes make or break them completely. It all depends on the value of the idea, how it is carried out and what tools are used.

Some four years ago William ("Bill") Neuffer was faced with the task of making the family living. He was a young man, his father had just died, and he had his mother and a younger brother to care for. Bill Neuffer thought over his problem and today there stands at the corner of Poplar and Robinson Avenues, Oklahoma City, an attractive tribute to that idea and the young man who has and is carrying it out—the service station which bears Bill Neuffer's name.

Neuffer believes in getting acquainted with his customers and the methods that have made his station a success are based entirely on that.

Getting acquainted with one's customers sounds like a rather ordinary business, but is it? Take as an example those stations, some with more money and more experienced men behind them, that closed their doors when Neuffer began carrying out his policies. Neuffer succeeded. They failed. There must be a reason.

One of the reasons is the manner and method that Neuffer has used to obtain his customer acquaintance.

He has developed a technique, the sole aim of which is to make every customer who drives in feel as much at home as it is possible for him to feel. There is no cool aloofness about the attendants or Neuffer himself; none of the sober business mask. Rather a customer finds a true smile and a willing hand to do him service—to step out of the way to do him service if need arises.

It doesn't take Bill long to get acquainted. Scarce indeed are the customers that he doesn't know by name. This may sound a good deal like the little country town station but Bill Neuffer's station is no country town station. It is situated in the suburb of a city of more than 175,000 human beings and there is hardly a five minute period in the day when Bill's station is not busy. He does business—lots of it—and it takes time for him to remember all of these names, but he does it and in so doing helps to make the customer feel at home.

And, feeling at home, the customer tends to give Neuffer all of the business that Neuffer can handle. And the alert young man is ever on the outlook for more. If he ever needs more space he'll build a bigger building.

The building carries out the ideas that Neuffer has



*Service jobs don't stay long on the floor of this modern station, thanks to the time-saving equipment used*



# Come to YOUR Shop . . . .

By  
Ernest W. Fair

used in building a successful station. Every department of it is separated from the other and every department is serviced with ample tools, labor and time-saving. That is why service jobs seldom stand long on his floor.

When he first started in the business Neuffer found it necessary to go about and solicit business, but that was soon unnecessary. No sooner had he succeeded in getting a few customers to come to his station than he noticed that many more he had not solicited nor ever seen began to come into the station to have various jobs done on their cars. And later he found the reason—there were so few stations in his neck of the woods that actually made their customers feel at home that when one did pop up, every motorist soon got word of its arrival.

He learned, too, in subsequent months, that by taking a real interest in every man's car he could promote that idea of his. Drivers soon began to depend on the friendly young man when he drove his car into the station. No longer did the proud owner step out and see that every job was done on the car; instead he knew that Bill Neuffer could be trusted to do the job better than he himself would do it.

It early came to his attention that many service stations were not living up to the letter of the Golden Rule. Not that these stations represented a large percentage of the stations of the country, but they were sufficiently numerous to give service a bad name.

Not that these other stations were deliberately dishonest, but it was conspicuous that customers at first would watch to see that grease actually got into the rear axle and that no pressure fittings were overlooked.

Bill Neuffer took the tip. At once he made every effort to make his customers feel at home. They were welcome on the service floor and in the greasing stalls. But what they noticed as much as the thorough work was the fact that the boss himself was evidently as interested in their cars as they were. This was something new to them. The natural result was such customer confidence that business increased rapidly, for it was no longer necessary for one to wait and see that his car actually received the service that had been ordered.

Naturally with the proprietor showing such interest, the workmen respond, with the result that it is rare indeed when it is necessary to point out a grease fitting that has been overlooked.

Thus by instilling a feeling of trust into his customers and making them feel as if the station were the home garage for the car, Bill Neuffer has found success as a very young man.

Others, young or old, might well see the lesson that Neuffer thought out before he started the business. An ounce of friendliness is worth a pound of business association in the service station business.



William Neuffer

# SELLING Service and

*This Dealer Has Found  
a Way to Do It*



**J. R. Histed**  
President of Hudson Motor Co. of Illinois

**I**T was about a year ago that A. S. Dampman, as sales manager for the Chicago main store of the Hudson Motor Co. of Illinois, was wondering how he could encourage his 18 retail salesmen to take more interest in the company's list of owners of Hudson and Essex cars.

Dampman of course had trained his salesmen to realize that this list of owners was decidedly their best source of new-car prospects. His salesmen also knew that these owners were naturally the chief source of patronage for the large company service department.

Of course each salesman did form the habit of regularly going through his daily routine of such work. He did try to keep more or less in touch with his individual quota of owners—to keep these owners satisfied with their cars, to get from these owners the names of new prospects, and to help in working up through these owners new company service business.

In thinking over this problem—of how he could get his salesmen more interested in this necessary daily routine—Dampman conceived the idea of paying them to do it. The idea may not have been original in the country, but it was original with Dampman, and he was concerned only with the results that it might bring.

In the follow-up of the plan, the company decided to pay to each salesman a commission of 4 per cent on all company service business that he thus could create, in addition to the commission of 5 per cent which he was being paid on the sale of all accessories.

It was in December, 1927, that this service-commission plan was started off. During that first month, while the plan was new, none of the salesmen earned a great deal in service commissions, their checks ranging from \$4 to \$10. But during the last few months, as positive proof of the practical merits of the plan, some of these same salesmen have been earning from \$50 to \$60 per month in service commissions.

Summarized from the viewpoint of the company, in less than a year of time this new plan has more than doubled the total service business of their main store building on South Michigan and Wabash Avenues. These remarkable results from the plan have been due in part to a supplementary plan which is only about six months old—an agreement by the company to pay to their car owners the sum of \$10 for the name of each interviewed prospect who later buys either a new Hudson or Essex or a used car. This supplementary bonus plan, coupled with their new service-selling plan, has been so successful that sales are being made to approximately 75 per cent of prospects whose names are thus received.

The entire service-selling plan of the Hudson Motor Co. of Illinois centers in what each retail salesman calls his individual "service file." In outward appear-



# Cars TOGETHER

*By Randall R. Howard*

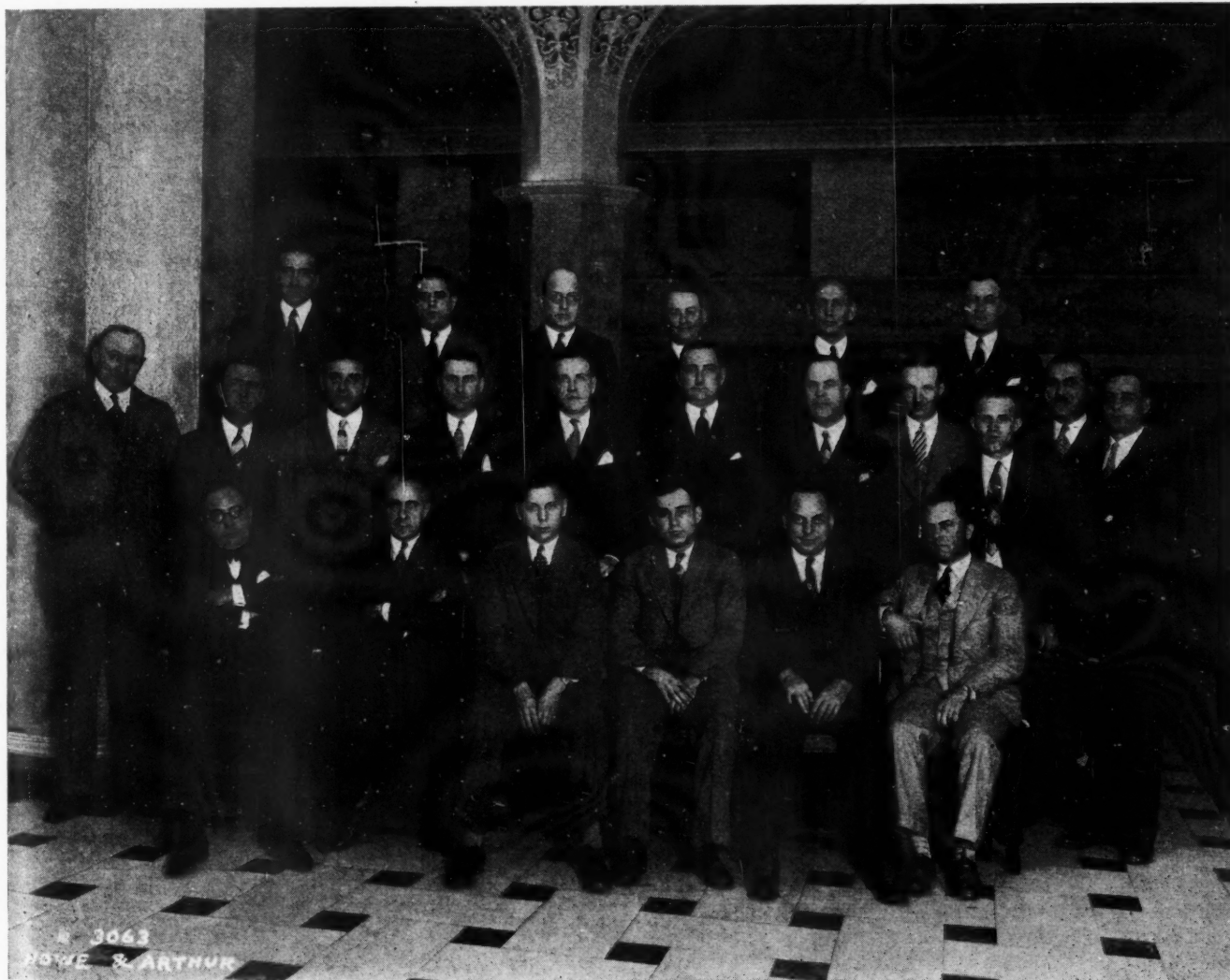
ance this file consists of a neat little covered box with from 70 to 200 stiff five-by-eight cards. On each card is the service history of a Hudson or Essex owner. This includes his name and address; the date on which he purchased a certain make and type and model of car, including the car and motor numbers; and the salesman who sold the car. Then there are answers to these printed questions: "Is owner driving car at present. . . . What is the total mileage. . . . Is car giving satisfactory service. . . . Are we doing the service work. . . . If not, who is. . . ."

The bottom half of the front side of the card is reserved for tabulations regarding "calls" and "service." Under "calls," the salesman checks whether it

is "phone" or "person," and records the successive dates of these calls. Under "service," the salesman records each individual job number, with the date and the amount. The reverse side of the card is used entirely for "new prospects obtained." The tabulated information under this heading includes name, address, phone number, results, and comments.

There are four different ways in which the company salesman accumulates these owner service cards. These methods are, in advance summary: through the retail car sales from their own main store branch; through the car sales of the five company branches of Cook County, which includes the old general owners' list; through additional personal hustling by the salesman; and through main store shop jobs.

Whenever a car is sold from the main store, one of the above-described owner service cards is filled out in the office, and this card is given to the man who made the sale. It is the duty of this salesman, within a few days, to get in touch with the new owner, either over the telephone or by a personal call, to inquire if the new car is giving full satisfaction. If not, it is the



*They sell both service and automobiles*

## SELLING SERVICE AND CARS TOGETHER

business of the salesman to follow-up. He makes certain that the needed adjustments are made; or that the new owner is given such instructions as will enable him to overcome the reported difficulty. The results from each such contact is indicated on an individual "daily report" slip which the salesman leaves with Assistant Sales Manager J. P. Hendricks.

This report slip includes spaces for recording the date of the call, the name and address and car of the owner; whether the contact was "phone," "at residence," "at business," "demonstrated," or "brought to store." Then there is considerable space for this head: "result (give as much detail as possible)." There are spaces for checking: "mail catalog . . . .," "letter on . . . .," "appraisal on old car \$ . . . .," "salesman . . . ."

The second method by which the salesman gets his owner service cards, namely, through the general Cook County owners' list—requires brief explanation. Previous to the starting of this new service-selling plan, the company had tried out a variety of methods of getting prospects. They had tried general automobile owner's filing systems of different sorts; they employed junior salesmen; they advertised for prospect names; they recorded the names of all who visited their stores, and as many as possible of those visiting their various automobile exhibits. They also worked for a time under the policy of restricted territory for their main store. But because the main store drew from such a wide general field, it was decided about two years ago to give up all zone restrictions for the main store salesman. The business of each of the other five company branches is naturally more localized, though a salesman is free to follow into another zone a prospect that seems logically to belong to him. All branches report sales to the main store. Thus, there has resulted a general Cook County owners' list. This old list, divided among the different main store salesmen, and consistently followed up, has resulted in some of their best owner service cards.

In addition to these two methods, the active main store salesman is constantly digging up new owner's names. Maybe the owner is a newcomer from another state; or a man chance-met who is driving a used Hudson or Essex; or a man driving another make of car and a new-car prospect.

The fourth method of adding owner service cards is a very important one—namely, through the main store service department. The department uses two different types of three-by-five record cards for the names of all service customers. The most completely filled of these two cards is made out in the office at the time of a sale of a car by a main store salesman. The name of this owner, as previously mentioned, automatically goes to the files of the salesman making the sale. The other type of card is for the service customer who happens in, without any previous company salesman contact. Such new-customer cards are distributed pro-rata among the main store salesmen.

There is an interesting procedure for giving the salesman credit for the service department work which he may originate. This is accomplished through a "service release" slip. This form, made out in duplicate, when dated and signed by the accounting department, becomes an official order to the "watchman," as follows: "Please allow Mr. . . . to leave building with . . . Car, License No. . . . which has been paid today."

In addition, this form includes the job number, the

name of the salesman to whom the job should be given credit, and the amount. As stated, the original copy of this form is given to the car owner, as his clearance from the plant. The other copy goes to the salesman who has this owner in his service files. If the service customer is a "drop in," then there is a rotation order for writing in the name of some salesman.

The salesman thus has the duplicate copy of the "service release," stating the amount of the job paid for by the owner. The salesman of course gets no credit for a service job which he did not originate; and in this case the service-release slip only enables the salesman to get a new owner in his files. However, it is the business of the salesman to follow up this job, by a phone call or a personal visit within a few days, to inquire if the service job has been satisfactory in every way. If not satisfactory, the salesman must make necessary adjustments. The result of this contact goes on one of his daily report slips; and then the salesman is supposed to keep constantly in touch with this owner, through telephone or personal contact at least once a month. Thereafter, whenever this customer comes back for a service job the salesman gets commission credit.

However, the salesman is not entitled to credit on any job reported on a service-release slip until after he has satisfied the sales manager's office that he has properly followed up the job, as indicated by one or more daily report slips. This service commission is payable once a month. As stated, some of the company salesmen have gradually increased such commission from about \$10 to more than \$60 per month.

When the new owner is bringing his car in for his first job, the salesman often makes an appointment to meet the customer at the Wabash Avenue entrance to the service department. Here he will introduce the owner to one of the six company "testers," or service inspectors. These testers, in addition to their salary, receive 1 per cent commission on all service jobs which they block out with the approval of the owner. Upstairs, all service work is on the flat-rate basis, and the mechanic works wholly on commission.

About six months ago was originated the "Hudson-Essex League of Scouts," through which owners are paid \$10 each for the names of "actually interviewed" prospects who later buy either a new or used car. About one-tenth of the sales are for used cars, and nine-tenths of all sales include some sort of trade-in. This plan, which closely supplements the service-selling program, is based upon a book of five postals, the cover of which announces: "There is \$50 inside this book." The offer is subject to the conditions that the postal must be received and registered in the office prior to the sale, and for a prospect who is an interested party and not previously registered. The booklet includes a "certificate of membership" for the insertion of the owner's name and the dealer's signature; and there is a back page for recording names of prospects sent in. In the office, before a booklet is given out, the salesman who holds the file card of the owner receiving this booklet is stamped on the address side of each postal.

Through an initial trial period, the use of these bonus postcards was not made known to the salesmen. This was done to prevent any possible advance bias against a plan much criticized in some circles. But there resulted such a high percentage of sales that the books are now being used openly. However, these booklets

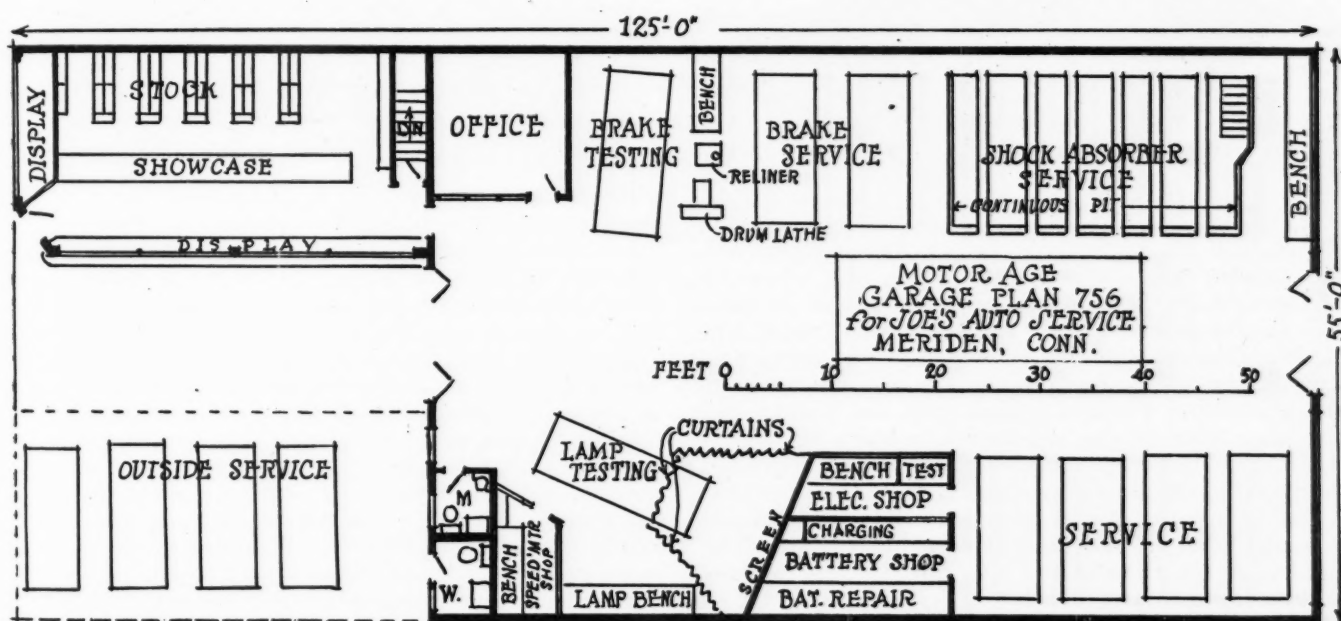
(Continued on page 41)



# Here's a GENERAL Shop Layout

Nearly Every Service Operation  
Can Be Taken Care of  
In This Station

By TOM WILDER



**Y**OUR combination of services is rather unusual, but the only question about the success of the project would be due to the location. We should prefer a good corner with a filling station to make contact with the customer so that you could get your share of the transient trade. In an inside location like this, most of the transients will pass by without seeing you unless you make some attempt to display your shop in some unusual way. One suggestion would be that the front part, used as a store, be built up higher than the surrounding buildings in the form of a tower with the services enumerated in easy-to-read signs on its faces.

It will be necessary to eliminate wall benches on account of the narrowness of the building, which should be from 60 to 65 ft. wide for a service building of this kind, but by placing the benches and shops between the service spaces, the aisle can be kept of good width.

*I AM enclosing sketch of a building which I would like to get a layout on. I am moving into this building in about a month and would appreciate your sending me your suggestions.*

*I am specializing in electrical and battery service for which I will have the latest type of equipment, also brake servicing, using a Cowdrey Brake Tester. I also have three pits for shock absorber installation and expect to have a chart for focusing headlights, also speedometer testing equipment, and may do spring installations. Very truly yours, Joe's Auto Service, 4 Perkins St., Meriden, Conn.*

The headlight testing is the only thing that requires more space than we have at our disposal and to get around this we have placed the testing stand and screen at an angle and worked in other shops around it in order to save space. Light necessary to the other departments is a detriment here, however, and to get rid of the light we are suggesting black curtains hung on rods so that they can be drawn aside to get the car in position. With a canopy over the enclosure a great enough

degree of darkness can easily be maintained.

The pit for shock absorber service and installation is continuous and the runways across it are 8 or 10-in. "I" beams laid side up; these are much stronger than channels, which are liable to sag.

If you do not build the store on the other side of the drive, the space would be fine for quick service and

(Continued on page 32)



W. S. Edwards

## *"With an O. K.*

*W. S. Edwards'  
It Says; That's  
No Used*

BY LOUISE

**I**N 1916 W. S. Edwards, Jr., of Birmingham, Ala., signed the contract that made him Chevrolet dealer for Birmingham. He started in business in a small building at 210 South Twenty-first Street. The organization consisted of Mr. Edwards—who did the selling and the office work—one mechanic and a janitor. Fortune smiled upon the venture and one year later it was necessary to move across the street into more spacious quarters to accommodate the growing volume of business.

Then came the World War. Mr. Edwards enlisted in naval aviation and the business passed out of his hands. At the close of the war, however, he returned to Birmingham and purchased it from the man to whom he had sold it.

The success of the business in the 10 years since the war reads like fiction; how it pulled through the "deflation period" of 1920 and '21, while thousands

of dealers throughout the country were forced to close their doors is another story and past history. Suffice it to say that in February, 1928, the Edwards Motor Company moved into its present building at Sixteenth Street and Third Avenue, North. To those acquainted with Mr. Edwards and his policies, it stands as a monument to fair business methods and efficient service. In it is personified the knowledge acquired in 12 years' experience as a Chevrolet dealer.

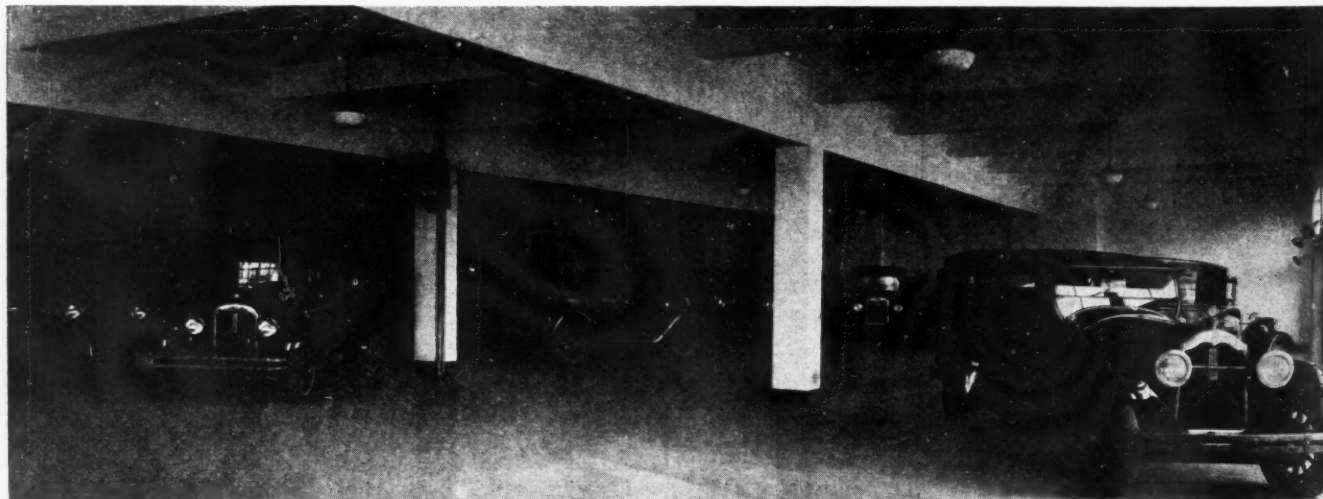
Writing of the new building, the Chevrolet Motor Company says:

"The Chevrolet Motor Company feels an extreme pride in such a building, and justly so. For, it sets up in this community an institution adequately progressive for the handling of the Chevrolet Motor Company's contact with the automobile purchasing public."

Service to customers begins in the office of the Edwards Motor Co. A record of all facts that may prove of value to customers are kept, such as permanent records of motor and serial numbers, key numbers of cars, insurance policies, etc. The date and cost of every service accorded to a customer's car is kept.

A "quick service" department is maintained just inside the service entrance. If a car is in need of minor repair or adjustment, it is attended to in double-quick time in this department, oftentimes without charge to the customer.

The service department is most efficiently and completely equipped for major repairs. The shop is light and airy, large and clean. Beside each work bench



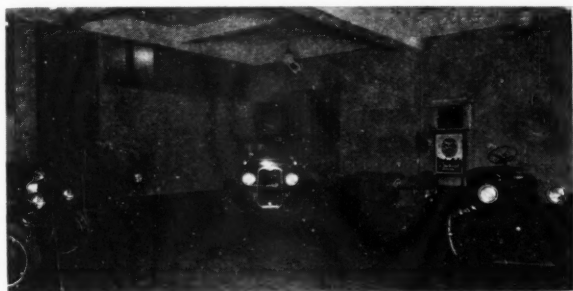
A corner of the storage floor



# "That Counts"

## Slogan Means What Why He Has Car Grief

CROWE WETZEL



*New car salesroom*

is a compressed air outlet for cleaning gas and oil lines, cleaning motors, etc. Each bench is equipped with double electrical outlets for inspection lamps and electric drills. Locker rooms equipped with hot and cold showers are provided. The service department is open 24 hours a day. This service has a particular appeal to operators of commercial vehicles, which must be kept running through the day, who find it convenient to have service work done at night. Often a car is washed and greased while the owner attends the theatre. The body repair department is most complete; any damaged part of a Chevrolet body can be repaired.



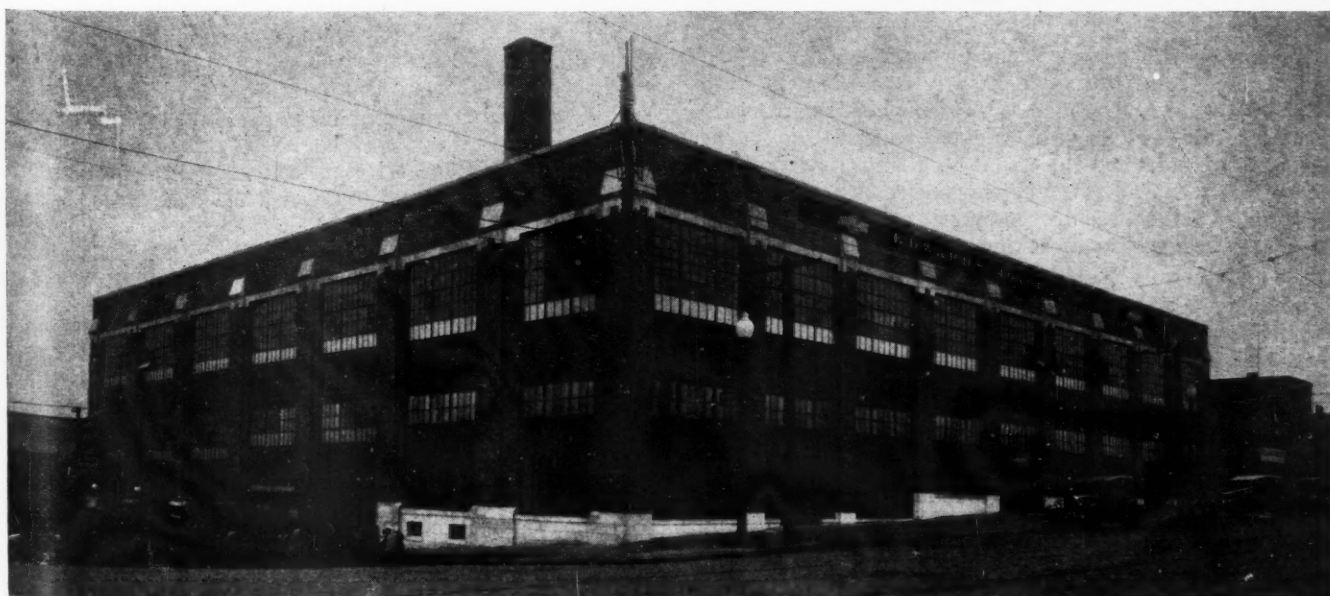
*The parts department*

The Edwards Motor Company—like many another successful dealer, does not recognize the used car as a "problem." The used car department is one of the most profitable in the organization.

The used car department has adopted the slogan "With an O.K. That Counts." This slogan is printed on a red tag and attached to the radiator of the used cars; but not all cars in the used car department are eligible for this distinction; consequently few receive it.

When a car is brought to the used car department for appraisal, it is checked on a detailed appraisal sheet; all items and operations necessary to put the car in first-class condition are noted on the sheet. The cost of these materials and work, together with the cost of selling the car, are deducted from the resale value. The net result is the amount paid for the car.

Skilled workmen only are employed in the reconditioning department, where the used car is next sent; in this department everything possible is done to put it in first-class condition. It is then thoroughly inspected, and if found mechanically ready for service, the red tag, "The O.K. that counts," is attached. The red tag is the buyer's guarantee of an honest value



*The new home, finished February, 1928*

## "WITH AN O. K. THAT COUNTS"

and the assurance of satisfactory performance.

The used car department handles three classes of cars: those bearing the red tag, the "As Is" car, and the junk car. It is the policy of the company never to sell a car that is not expected to give satisfaction. The junk cars are never offered for sale, but are knocked down and the metal sold to the scrap iron dealers.

The company does not neglect its other departments by its interest in the used car department. Every new car is thoroughly tested and inspected before it leaves

the salesroom. The crankcase is drained and refilled with new oil. The car is lubricated, all chassis and body bolts inspected, the motor tuned and adjusted, spark plugs and brakes adjusted. The car is carefully washed before turning it over to the purchaser.

It is by strict observance of details usually overlooked and treating matters ordinarily considered of minor importance as major, that, after 12 years of steady building, the Edwards Motor Company is established as one of the most substantial and modernly equipped dealer organizations of the South.

## This Reader Has a Problem

Editor, MOTOR AGE:

All my life I've seemed to have a way of running into funny happenings. In the garage business it has been no different, but the most crazy thing that ever happened come to pass last week. There is a man here, head of the leather company that bears his name; therefore please omit my town from this letter if you publish it. I don't want anyone around here to get hold of the story. But the readers of MOTOR AGE will probably get a kick out of it and I want certain advice from you. So I'm sending it along.

This man has sent his chauffeur in to see me often for little things during the past month. The chauffeur has often asked would I give him a discount for himself. I always said no. Well, come to find out this man had sent his chauffeur in to ask for discounts so he could see was I honest. Which he found it out I was. He told me himself when he come in to get this peculiar job done. He wanted to feel that I'd give him an honest job because this one was by the hour and not flat rate which I usually employ.

He is eccentric, known for funny doings. And I mean he really is a nut—plain squirrel food. So I wasn't surprised when he told me what he wanted, which was as follows:

He has two big cars. What he wanted me to do and what I done was to take these cars and clean them up, at \$1.25 an hour. *And when I say clean them up I mean just that.* His proposition, which I followed to the letter, was to start at the front end and remove every solitary speck of dirt from the entire car. Clean the underside of the pan, for instance, and actually polish it. Clean all gas connections and polish them like a door-plate.

Two men worked on the first car for two solid weeks and I don't mean maybe. They even shined up cotter-pins and such. So finally I called him and said to bring

in the second car; the first one was done and see how he liked it. He come in and looked it all over. Then he says it was very good and he ought to said so because it was cleaner and more shiny throughout than ever a car was out of the factory. So I thought he was all set to leave us work on the second car, which was of course good money even though a crazy job, so what did I care. But no. He says to take off the radiator, clean the brass on that throughout; take down the engine and polish the valves, clean the guides thoroughly and like that. Then have the head-nuts and similar things chrome-nickeled! Well, darned if we didn't do that too. The bill, honestly figured, come to \$376, inclusive of the nickel.

Well, the whole thing as I told my brother was enough to set a sane man crazy, but we done as we was told.

We starts on the second car and gets the work done except the engine. I thought I better call up and ask did he want the radiator taken down and buffed up bright, etc., as on the other car. So I done that and darned if he hadn't been in a crazy-house for a week. He was plumb cuckoo and so was the chauffeur, though the chauffeur was keen enough to duck out before the authorities got hold of him. Now I hear this chauffeur was in a asylum for the criminal insane for two years and by what I hear his employer will be there longer than that.

People always said this guy was a genius because he did strange things but he made a lot of money just the same. But they decided he was funny when they got wise to his latest trick which was he started to experiment with a lawn-mower that had holes in the blades so it would skip the flowers.

Now what I am writing to you for is this; his estate won't pay the bill on the second car and we are holding it for work done. Would a workingman's lien apply on a crazy job like this or no? Please answer by return mail.

## Here's a General Shop Layout

(Continued from page 29)

adjustments such as checking batteries, etc., in fact, it might pay you better in that way than it would in a store to rent, if that is what you have in mind, for there would be no investment, whereas the store would require quite an investment and would only do a little better than interest, taxes, insurance, etc., on the outlay.

Disregarding the value of the store, the layout would be much better in the form of a service yard as we have shown because this would give it a form of hospitality that would be lacking in the narrow passage. Strangers do not like to drive into a place like this without knowing more about what is at the end of the passage.



# Bracke Carburetor Embodies Fuel Feed System

*Vacuum Sufficient to Lift Gasoline 36 in. Fuel Delivery Controlled Entirely by Pressure Differences*

*By M. Warren Baker*

**A**TOMIZATION and lift by means of venturi action is the principle of the new Bracke Fuel-Lift carburetor which shortly will be in production for original equipment by the Vacturi Carburetor Co., 1253 Diversey Parkway, Chicago.

The Bracke carburetor combines a fuel feed system with a carburetor proper. Sufficient vacuum is set up in the fuel chamber, by the use of a venturi nozzle, to lift gasoline at least 36 in. at all times.

In general design, the new carburetor differs from most others in that it has no float or float mechanism. Fuel delivery is controlled entirely by pressure differ-

ences although an accelerating plunger and an economizer are provided to maintain efficient operation under all conditions.

The body of the carburetor has a main air intake, a mixing chamber and a throttle bore. Communication between the air intake and the mixing chamber is controlled by a spring-balanced air valve 5, the lower end of which is adapted to form an air dash pot 6. The air valve spring is adjusted through the use of a counteracting spring between the air valve body and an adjusting screw 7.

Extending through the side wall of the carburetor and emptying into the mixing chamber, is a venturi tube 20, with such a small admission nozzle that the air valve 5 is held slightly off its seat even at the lowest idling speeds. The throat of the nozzle is drilled for a series of fuel jets, which are in communication with the fuel passageway 21, terminating in a diaphragm chamber 22.

The diaphragm chamber and its cooperating parts take the place of the conventional float and float chamber. The diaphragm itself is of phosphor-bronze, about 0.0045 in. thick, with an outside diameter of 2 3/16 in. and a working diameter of about 2 in.

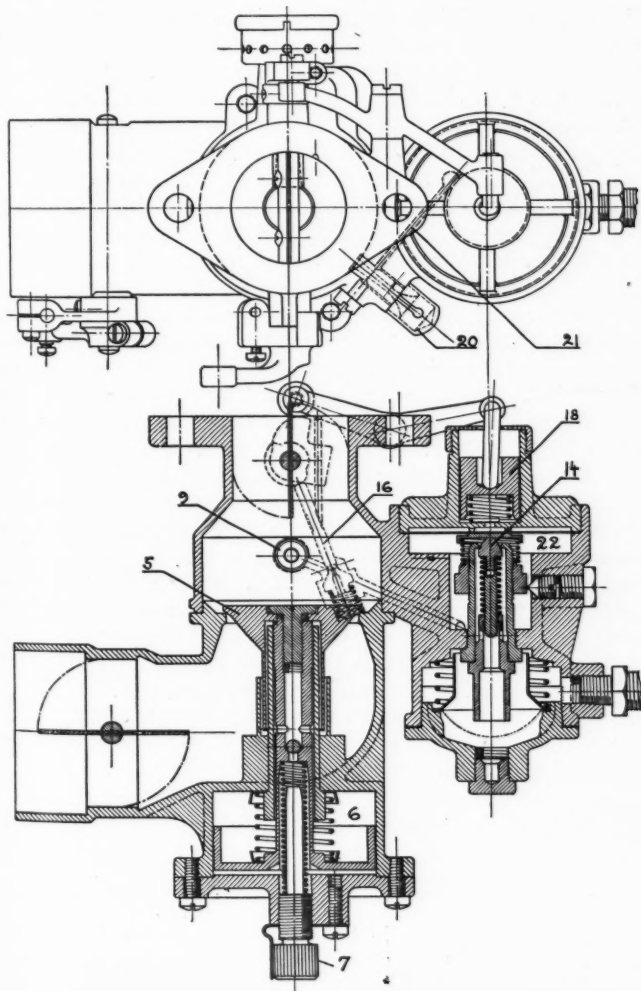
A spring-seated fuel valve 14 has its upper end resting against the bottom side of the metal diaphragm. The upper side of the diaphragm is normally under atmospheric pressure, except under certain conditions which will be discussed further on, so that when pressure on the under side of the diaphragm is lowered, the diaphragm is flexed downwardly, thus opening the fuel valve.

## Principle of Economizer

The carburetor also is provided with an economizer to insure the leanest possible mixture throughout the normal driving range; an accelerating device, a readily adjustable "idler," and a choke to facilitate starting.

The economizer is formed by a throttle operated plunger 16, fitted with a fuel metering orifice, through which all the fuel must pass when the throttle is only partly open. At wide open throttle, this spring-balanced plunger is pushed off its seat by a cam secured to the throttle shaft, allowing a much greater volume of fuel to pass into the venturi throat jets.

Another cam is secured to the throttle shaft to operate an accelerating piston 18, spring balanced, and placed in a small cylinder just above and communicating with the diaphragm chamber. When the throttle is suddenly opened, the piston is depressed, placing a



*Plan and vertical section of Bracke carburetor*

pressure greater than atmospheric on the upper side of the diaphragm, thus depressing it and allowing a strong "shot" of fuel to enter the mixing chamber.

The diaphragm acts merely as a controlling factor, operating under pressure differences, and in no case does it oscillate, thus obviating crystallization.

Operation of the carburetor is as follows: Assuming the throttle to be wide open, a suction is set up in the mixing chamber. At low speed under wide-open throttle, this suction is equivalent to approximately  $\frac{3}{4}$  in. of mercury. This pressure reduction causes a high velocity air flow through the venturi nozzle and, because of venturi action, the suction of the mixing chamber is multiplied from 12 in. of gasoline to more than 36 in. at the throat of the venturi tube.

This high suction is communicated to the fuel chamber, where it serves not only to flex the diaphragm but also to draw fuel up the line from the tank. The diaphragm and cooperating mechanism are so arranged that a pressure of 36 in. of gasoline column is necessary to open the fuel valve, thus providing a minimum lift of 36 in. at all times and also preventing flooding of the chamber when the car is stopped in a downhill position with the engine not running.

The fuel feed holes in the venturi throat are made large enough not to offer any material restriction to the fuel flow, with the result that the amount of fuel delivered is largely dependent on the depression difference between the diaphragm chamber and the venturi throat. It, therefore, follows that the fuel delivery is regulated by the venturi throat suction, which in turn is controlled by the mixing chamber depression. Since the mixing chamber depression is controlled by the air valve and its parts, calibration of the new carburetor is entirely a matter of regulating the air valve spring.

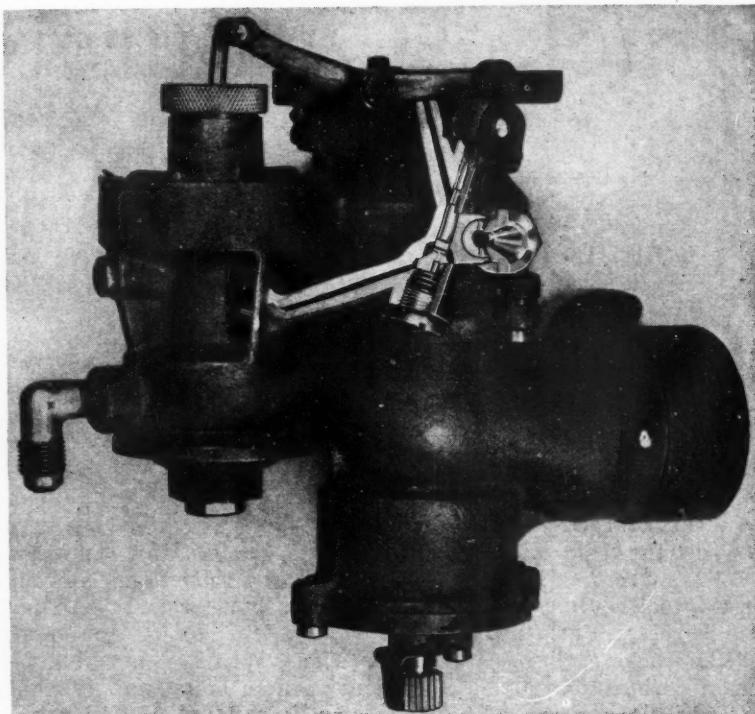
The diaphragm and diaphragm chamber are designed to maintain an almost constant pressure reduction, and tests in the company's laboratories show that with a 2 in. diaphragm and a  $\frac{1}{4}$  in. fuel valve seat, the minimum suction of 36 in. increases to 60 in. at top speed, under wide-open throttle.

It will be seen from this that if, for a given engine demand, a certain prearranged pressure reduction is provided in the fuel chamber, the quantity of fuel delivered to the venturi is constant, regardless of the actual fuel head existing between the tank and the chamber.

If, for example, it be assumed that a 10-in. fuel lift is required under a certain engine-operating condition, the fuel valve assumes a position where a predetermined pressure reduction in the diaphragm chamber is formed. If then the car starts up a hill and the fuel lift increases to 20 in., the suction in the diaphragm chamber increases only slightly, due to the heavier lift demand, in turn causing a greater diaphragm flexure and a greater opening of the fuel valve.

The reverse would be true if the fuel lift were changed to no lift or even to a head. In theory, the mixture is leaner with a heavy fuel lift than with no lift or a head, but tests have shown that practically there is no difference.

Since the fuel lift system is a sealed one, it is necessary that some means be provided to remove any vapor which may form in the fuel line or carburetor



*Bracke carburetor, with accelerator fuel passages shown sectioned*

when they become warmed. To perform this operation, a second venturi tube is provided, extending through the mixing chamber wall into the atmosphere, with its throat communicating with the upper end of the diaphragm chamber through a restricting orifice.

With a six-cylinder engine of approximately 225 cu. in. displacement, the total movement of the diaphragm is not more than 0.010 in. and this is reached only at top speed under open throttle. The fuel valve is made of stainless steel and its seat of brass. The valve may also be supplied in Monel metal if desired.

The accelerator piston is arranged with 0.004-0.005 in. clearance, to allow atmospheric pressure to prevail above the diaphragm under normal conditions. The shape of the accelerator piston cam on the throttle shaft may be varied to give any degree of enrichment demanded. The economizer cam, likewise, may be given any contour to bring the economizer in or out of action at required points.

A by-pass has been provided between a point midway of the economizer bearing to a point midway of the throttle bore above the throttle, to overcome any bubbling in the fuel passageway. Since the economizer extends through the casting and the clearance is subjected to atmospheric pressure, slight amounts of air may be drawn into the passageway and cause erratic action. Through the use of the by-pass, the high manifold depression serves to draw up any air that leaks through the economizer clearance into the manifold, instead of permitting such "bubbles" to pass downward through the nozzle.

At low idling speeds the manifold vacuum is sufficiently high to draw up a small amount of liquid fuel through the economizer clearance, thus providing a richer mixture for idling.

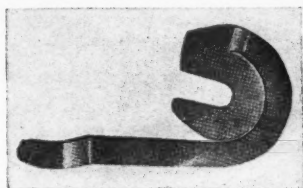
Repeated laboratory tests have shown that delivery of fuel is practically instantaneous, even when there is no fuel in the line. Because of the venturi nozzle delivery, when a rich mixture is supplied when the engine is choked in starting, it is thoroughly atomized and the engine fires immediately.



## New Merchandise

### Trico Parker Clips

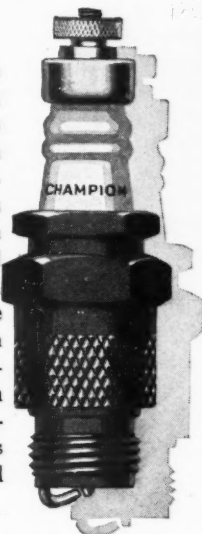
**T**HE Trico Parker clip is designed to hold the windshield wiping blade out of the line of vision. This clip is made of spring brass finished in nickel. The installation is simple, as it is merely necessary to loosen one attachment screw on the windshield cleaner and to



slip the clip into place. When the wiper is turned on the clip releases automatically. These clips sell at 15 cents each. They are made by the Trico Products Corp., 624-626 Ellicott St., Buffalo, N. Y.

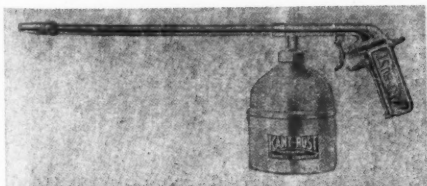
### Spark Plugs

**T**HE Sillimanite core, used in Champion plugs, has been improved in both process and design, increasing its mechanical strength and ability to stand high temperatures. Improvements have also been made in the gasket constructions. The Champion Spark Plug Co. manufacture these plugs and they are located at Toledo, Ohio.



### Kant-Rust Combination

**A** NEW cup-type gun, five gallons of Kant-Rust, and a metal service sign, are included in the latest group offer made by the Kant-Rust Products Corp., Rahway, N. J. The total price is \$22.50. The gun has a comfortable

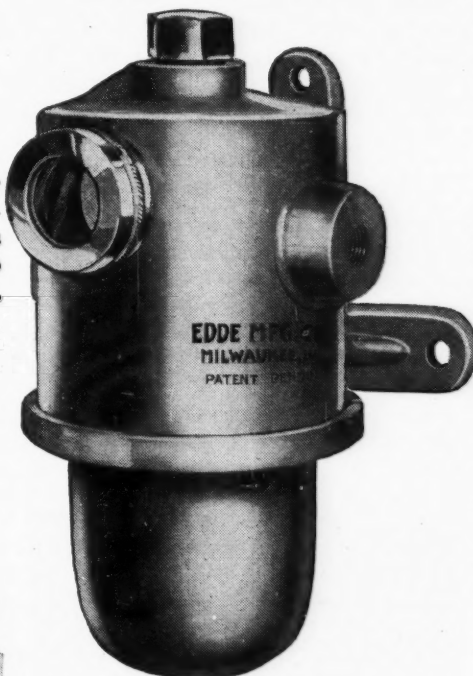


grip with positive trigger control which assures reaching even the most inaccessible parts without wasting the lubricant. The nozzle will supply either

a spray or continuous stream. This gun can also be utilized for engine cleaning. The five gallons of Kant-Rust is supplied in a "Pour-Ezee" drum.

### Door Anti-Rattler

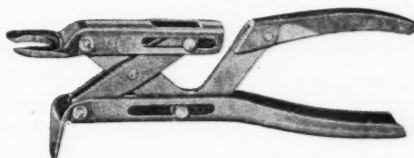
**T**HESE anti-rattlers fit all cars, both closed and open, and are easy



to install and guaranteed for five years. Due to their construction, they are said to stop all door rattle. They sell for 25c, and are made by Edde Mfg. Company, 264 So. Water St., Milwaukee, Wis.

### Model A Valve Lifter

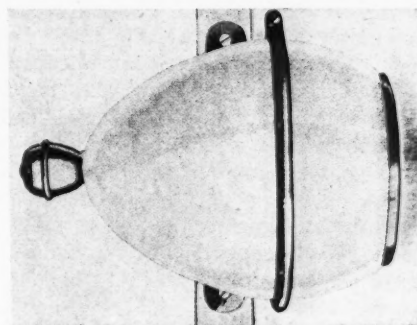
**T**HE K-D valve lifter No. 307 is especially made for servicing the Model A Ford car. In using this tool it is unnecessary to remove the manifold or carburetor. The bottom jaw rests on the engine block and the upper



jaw slides between the coils of the spring, thus leaving the combined valve spring washer and keeper free for removal. This tool lists at \$1 and is made by the K-D Mfg. Co., Lancaster, Pa.

### President Spot-Lite

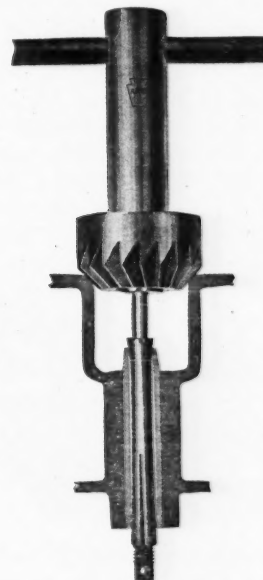
**T**HE new President Spot-Lite made by the Delta Electric Co., Marion, Indiana, sells at \$6.50, complete with



clamp-type switch for mounting on the dash. This light is of unusual appearance as it is finished in white lacquer and trimmed in nickel. The light is said to throw a very powerful, concentrated ray for a long distance.

### Self-Centering Pilots

**T**HE latest feature to be found in the Keystone line of valve reseating tools are self-centering pilots. The Keystone valve reseating set No. 1200A contains three cutters, one self-centering pilot, two collets and the necessary shank and handle. It is said that this will handle 95 per cent of the work



brought to the average service station. This lists at \$25 and is subject to the usual jobbers' discount. The claim made for the tapered top collet with split bottom, giving three point expansion at all times, is that it insures rig-

idity and accurate automatic centering, no matter how badly the valve guide may be worn. The Keystone Reamer & Tool Co. is located at Millersburg, Pa.

### Gasket Strips

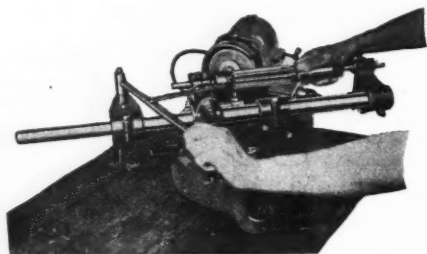
**JOHN CRANE**" metallic universal oil pan gasket strips are produced to eliminate the need of carrying a quantity of different kinds of gaskets to fit different engines. The gasket material is sold in 50 ft. reels at \$6 per reel. The needed length is pulled out and laid on the job, the corners being nipped in order to let the material bend



and the bolt holes being punched to let the bolt pass through freely. The sealing edge of this material is of compressible resilient strip covered with babbitt foil. This material is available through jobbers or directly from the Crane Packing Co., 1800 Cuyler Ave., Chicago, Ill.

### Reamer Grinding

**A** NEW device used on Black & Decker  $\frac{5}{8}$  in., 1 in. or  $2\frac{1}{2}$  in. valve refacers, is a reamer grinding attachment by means of which expansion reamers may be sharpened. This will handle either straight or spiral expansion reamers up to 5 in. in diameter,



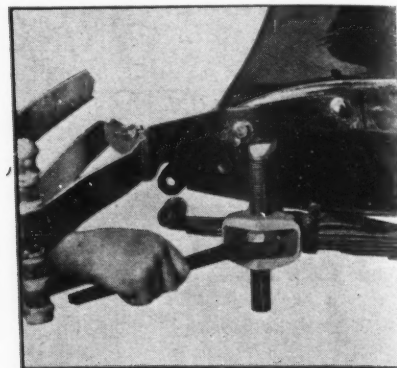
14 in. overall length and 7 in. blade. Lever feed is provided for moving the reamer across the face of the grinding wheel. A graduated micrometer taper attachment permits grinding tapered reamers. This reamer grinding attachment is made by Black & Decker of Towson, Md., and sells for \$65.

### Piston Ring Compressor

**T**HE long tongs of the Forest Piston Ring Compressor give powerful leverage, and by means of a locking ring holds the piston rings while installing. The lengths of the tongs also make it possible to use this when installing pistons from the bottom as well as from the top. The compressor band is made of tempered spring steel. The price for a complete set is \$2. The maker is the Forest Electric Corporation, New and Wilsey Sts., Newark, N. J.



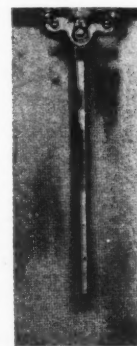
against the spring and the other against the spring arm or chassis frame. The



spring is then spread by turning a hex nut set into the recessed base jaw.

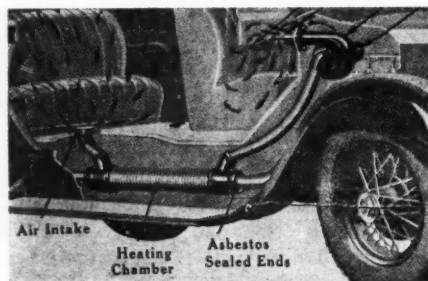
### Trico Sleet Wand

**T**HE Trico sleet wand consists of an arm mounted on the passenger side of the windshield and carrying a small electric heating coil. The gentle heat is effective in removing sleet and ice from the windshield. It is unnecessary to swing the wand back and forth as the warmed water produced by the heat is spread back and forth by the windshield wiper, thus clearing the glass and keeping it clear. This device sells for \$2.50 and is made by Trico Products Corp., Buffalo, N. Y.



### Marquette Car Heater

**T**HE Marquette car heater incorporates unique features. It includes a six-volt electric motor which operates a circulating fan or blower. This blower is mounted on the engine side of the dash. It is connected to a heating chamber which surrounds the exhaust pipe. A register in the floor of the car connects with the heating chamber. When the blower is in action, air



is drawn in from the floor of the car and caused to circulate around the hot exhaust pipe. It is then drawn up through the blower and forced into the car through a hole in the dash. It is claimed that one model fits all cars. This heater is made by the Marquette Mfg. Co., St. Paul, Minn., and sells for \$35.

### Spring Jack

**A** NEW spring jack that speeds up the replacement of shackle bolts at both ends of front and rear springs has been produced by Thompson Products, Inc., of Cleveland. The tool, named the "Handy Jack," because of other useful applications in chassis repair and maintenance work, consists of a movable jaw with a one-inch diameter threaded shank, passing through a base jaw.

In applying the tool, one jaw is set

### Valve Refacer

**T**HE new  $\frac{5}{8}$  in. valve refacer, made by Black & Decker of Towson, Md., will handle valve stems from  $\frac{1}{8}$  in. to  $41/64$  in. in diameter. The chuck is guaranteed to be accurate within .001 in. Two motors are used, one to drive the grinding wheel—the other to drive the chuck spindle. The grinding angle of this machine is adjustable from 15 deg. to 90 deg. Standard equipment



includes Diamond wheel dresser, V block for squaring off ends of valve stems, and valve seat reamer grinding attachment. The price is \$140 for all standard voltages.



# READERS' CLEARING HOUSE

Questions Answered By C. Edward Packer

## Olds Four Missing

We have a problem which we would like to have solved. The problem is in connection with an Oldsmobile 43A four-cylinder car that develops a miss, either on a hard pull or on the level. Other shops have installed a new vacuum tank, new wiring, distributor, spark plugs and carburetor. The engine has been cleaned and new valves installed and ground, but the engine still has this miss after a few days running. Then it will run fine for a few days without any trouble, then will miss again. What do you suppose can be causing this?—Pennsylvania Subscriber.

THERE are several possibilities for this trouble. To begin with the valves should be set with a clearance of .007 to .008 in. There is a chance that the rocker arms on this job are worn so that it is impossible to get an exact valve setting with a feeler gage. If this condition exists the arms should be renewed or ground smooth so that the valve setting can be made accurately. Also, if these rocker arms are rough it is possible that a high spot keeps the valve from sealing occasionally with the result that the engine starts missing. Aside from that there is a possibility that the contact inside the ignition switch is not good with the result that the current is interrupted, thus causing the engine to miss.

## Drop the Flywheel

We are going to repair an oil pump on a 1918 Willys-Knight model 8-88, eight-cylinder car. Please let us know if it is necessary to drop the clutch and flywheel to do this.—D. L. Priestley, Martin, Tenn.

IT is necessary to drop the clutch and flywheel in order to service the oil pump on the 1918 Willys-Knight.

## Knocks at High Speed

We have a Durant 65 that runs perfectly up to a speed of 55 miles an hour. Above that speed the engine develops a knock which much resembles the knock of a burned-out rod. The peculiar part about this noise is that the knock does not occur as rapidly as it would if it were a bearing. This car was carefully broken in for 2000 miles and the oil pressure is the same now as when the car was new. Any information regarding the cure of this trouble will be appreciated.—Reliance Motor Co., Macomb, Ill.

THE trouble in your car sounds to us very much as though you had detonation at high speed. This problem of detonation is a rather elusive one and the trouble makes itself evident in several different ways. The noise may be intermittent, as you men-

tion, or it may be constant, much on the order of a badly carboned up engine. It might also be worth your while to check up to see there is nothing such as a heater pipe or control rod of some kind vibrating against the engine at high speed and making the noise that is bothering you.

## Use the Feeler

Can you tell me how some of the manufacturers expect mechanics to set valve timing by checking with the tappets set at a certain clearance? For instance, when they tell you to increase the tappet clearance a certain amount do they expect you to use a thickness gage to check this amount of increase, or just feel the tappet with your hand? One job that puzzled me was a Chrysler 70 on which the inlet should open at top center and the exhaust close at .007 in. piston travel past top center with the tappets set at .008 in. On this particular car using no feeler, the inlet opened exactly on top center but the exhaust did not close until

.058 in. past top center. Could this have been some experimental shaft? What I want to know is when the valve would open and close while the engine is in operation.—Theo. R. Farrington, 2522 W. Marquette Road, Chicago, Ill.

YOU will find that some manufacturers specify the tappet clearance and mention that the clearance should be set while the engine is thoroughly hot. Naturally the engines are not likely to be hot while you are checking the timing, and consequently it is necessary to check this timing at a different tappet setting than would be obtained under running conditions. This difference in tappet clearance is, of course, due to the expansion of the parts when heated. You will generally find that where it is specified that the tappet clearance should be set when the engine is hot, that a different tappet clearance will be given for engine timing. We presume you are equipped with the necessary dial gage for screwing into the last cylinder to check the exact amount of piston travel in thousandths of an inch. If you can check up on this car again you might try comparing the timing formerly obtained in thousandths of an inch, with what we will give you in degrees. The exhaust valve should close 8 deg. after top dead center on 1927 models. On the same cars the inlet should open 6 deg. after top dead center. On 1926 models the inlet should open at top dead center and the exhaust close at 2 deg. after top dead center. All tappet clearances should be very carefully checked with a feeler gage and rechecked after the lock nut has been pulled up tight. We do not believe that there is any special shaft in this car, unless it has been altered after leaving the factory. We think you will find that it is probably a 1927 model and that the tappet clearance was set a little too close, especially if this clearance was guessed at, and as a result the exhaust valve closed a little late, thus giving you the .058 in. of piston travel.

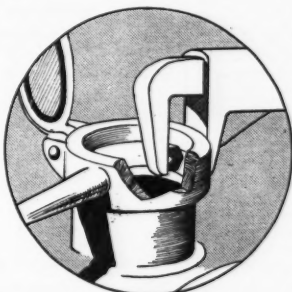
## Chev-Ford Transmission Installation

We repaired a Chevrolet transmission that was installed in a 1924 truck. This transmission had all new gears put in, but it still keeps slipping out of high gear when the brakes are applied, or when going down hill. It never slips out of high when pulling hard. To make this transmission fit on the Ford

## SHOP KINKS

*Ideas that have proved useful*

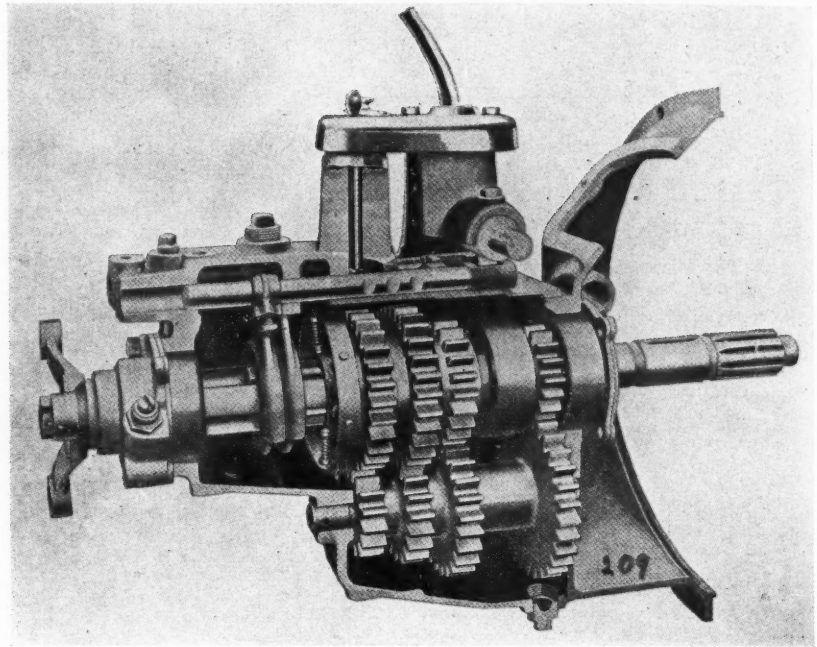
TO remove the self-locking screw type radiator cap, we use a wrench with a nut on one jaw of it, as shown. This nut should be placed in contact with the inner or threaded part of the radiator cap and the wrench tightened up against the outer part of the cap. Then when turning the cap, the wrench clamps the outer part which is swiveled against the threaded inner part and will turn off even the tightest of these caps.—L. Morgan, Chase & Hinds Motor Co., Cedar Lake, Iowa.



## [READERS' CLEARING HOUSE]

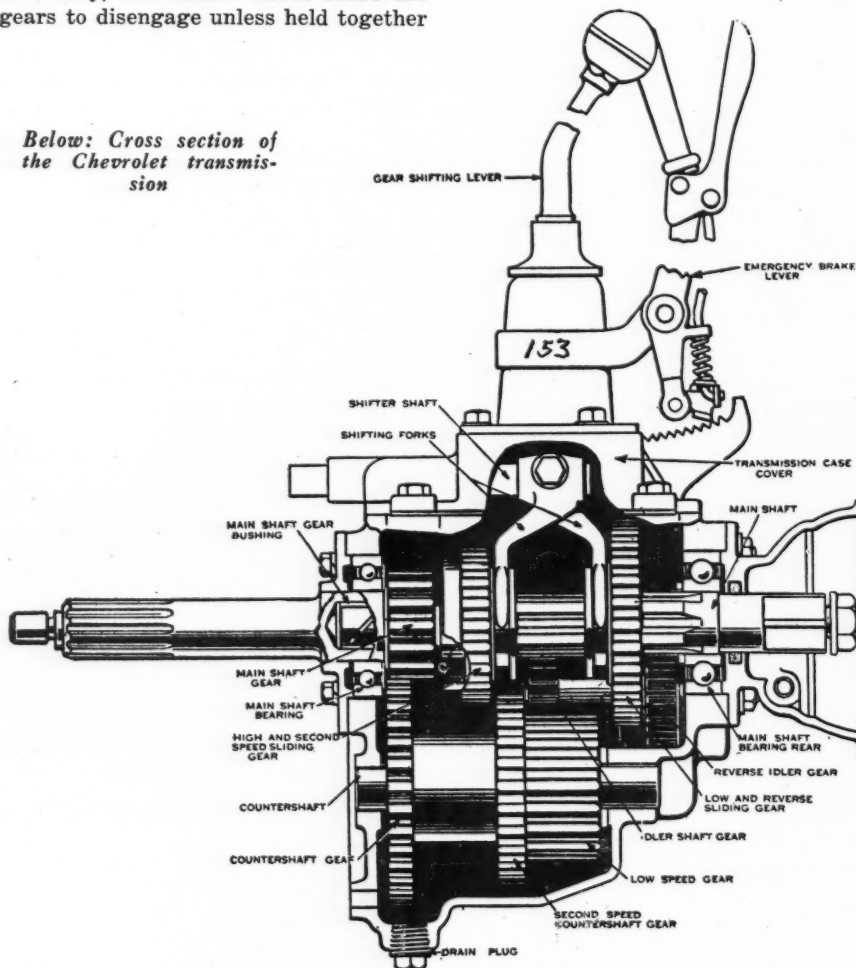
the high shaft was cut off and squared so it would take the place of the Ford universal joint, and the transmission was mounted on to the Ford transmission, and supported with a brace that runs to the frame on both sides. This seems to make it rigid. Could this trouble be overcome by using two universal joints?—Kufahl Hardware Co., Wheaton, Kan.

**W**E believe you have the right idea when you suggest using an additional universal joint. There is no doubt that the trouble in this transmission is caused by lack of alignment between the main shaft that is squared and which enters the rear end of the Ford transmission, and the transmission itself. It would probably be impossible, or at least quite difficult to secure perfect alignment between these two transmissions. We are showing a cross-sectional view of the Chevrolet transmission. You will appreciate that with the gear marked high and second speed sliding gear, slid over the main shaft gear, that any misalignment between the main shaft and the main shaft gear would cause a slight universal action between these two gears. Naturally, this action would cause the gears to disengage unless held together



*Chandler Traffic Transmission, showing how all gears are in mesh at all times*

*Below: Cross section of the Chevrolet transmission*



by a powerful force, such as when the truck is pulling hard. Of course, you could try the expedient of increasing

the tension of the shifter plunger springs, but we assume that you have already considered this possibility.

### Oil Leak Into Clutch

We have two Chandlers with Traffic Transmissions and we would like to know how to stop the oil from leaking out into the flywheel housing. The owner of one of these cars had the transmission filled with oil and a week later it required another filling. We dismantled the transmission, but can see no effective means of stopping the oil from coming out through the ball bearing at the front and leaking out through the clutch housing. We will appreciate any information you can give us on this subject.—Herbert W. Head, Central Garage, Garden Grove, Calif.

**F**ROM the wording of your question, we assume that the proper grade of lubricant has been used. Unfortunately some filling stations are careless about the transmission lubricant and in this particular type the use of a lubricant of too heavy a body is almost certain to result in leaking into the clutch housing. A heavy steam cylinder oil is recommended. This oil is kept from working into the clutch housing by a slinger or oil disk which should be back of the oilless bearing of the transmission. In assembling these transmissions a mechanic sometimes makes the mistake of putting this slinger to the front or engine side of the front bearing whereas it should be to the rear of the bearing. In addition to this, there is a thread turned in the shaft for the purpose of working excess oil back into the transmission. Aside from this, there is nothing to control the oil, but if the transmission is not filled too full, you should have no difficulty with the lubricant working out.



## READERS' CLEARING HOUSE

### When Should We Clean Carbon?

I have a Buick sedan Model 27-47, Series 120. During the breaking-in period considerable oil was used in the gasoline. At 4475 miles a carbon knock has reached the point where cleaning the carbon would have been necessary, but instead of that I have been using ethyl gasoline since that time. The car has now run 6600 miles and seems to be in excellent operating condition in every way. There has been no noticeable decrease in power or any other troubles which might be caused by carbon interfering with the valve action.

As a regular reader of *MOTOR AGE* I would like to have your opinion as to when carbon ought to be cleaned out for the good of the engine. Shall I have it cleaned out after some certain mileage has been reached, regardless of how well the engine operates? Or do you think it would be safe to continue until some trouble develops? This question is prompted entirely by consideration of what is best for the engine in the long run without regard to relative cost of using ethyl gasoline as compared with having carbon cleaned more frequently.

If it is your opinion that I should continue with ethyl gasoline until trouble develops, what trouble would you consider would probably be the first indication of the desirability or necessity of cleaning the carbon and grinding the valves?—W. G. Taylor, General Electric Co., 1 River Road, Schenectady, N. Y.

**T**HE first trouble generally noted in connection with a carbon accumulation is that of detonation. However, use of a good ethyl gasoline will offset this for a long time. The formation of carbon is actually advantageous within limit; that is, it builds up in the combustion chamber, increasing your compression, and if you could keep away from detonation your engine would perform well. But at the first indication of irregular compression, it would be our suggestion that you have your carbon cleaned, for continuing to run after your compression has become uneven is sure to result in burned valves.

Aside from that it is improbable that any damage will be done to your engine, though an extreme case of carbon formation long neglected may result in small particles of carbon getting next to the piston and scoring the wall. It has been said by some authorities that carbon should be cleaned out of an engine every 10,000 miles for satisfactory operation. It is impossible, however, to say definitely when carbon should be cleaned. We prefer to recommend cleaning carbon when the engine shows signs of needing it, that is, compression becomes uneven as the result of burning or sticking valves, or when detonation becomes serious.

We suspect, however, that you will probably do well to have your carbon cleaned at the end of about 10,000 miles.

The formation of carbon is much more rapid in some engines than in others. This may be due to difference

in design, difference in operating conditions, difference in the quality and grade of oil used, and difference in the manner in which the car is cared for. The kind of fuel used also has a direct bearing on the amount of carbon that an engine will accumulate.

### Quieting Noisy Valves

What can be done to quiet the valve tapping noise in a 1926 Star coach which has been run about 10,000 miles? The tapping seems to be right in the engine at the valve. Two of three valves sound more pronounced. What is the proper valve clearance for this engine, and is it measured hot or cold? Now such noises as I refer to, are they really valve tappet noises from tappets striking the valve stems or could it be something else? Have the valve heads in seating ever been known to make an audible noise? Would different adjustments of clearance have something to do with the tapping?

This Star, a four-cylinder car, has always been well taken care of and never abused, and the owner says that the tappings have gradually become more noticeable since the last few thousand miles. The noises are not what would be called excessive, but when the engine idles it can be plainly heard. At higher speeds, too, it is noticeable, but then there are other noises and sounds with it.—Texas Reader.

**T**HE correct clearance for the valves is .006 of an inch when the engine is hot. Unequal adjustment of the clearance is the thing most likely to cause objectionable noise. That is, if all valves were adjusted to .008 of an inch they would probably all be making a noise, but the uniformity of the sound would prevent the noise from being particularly noticeable. A condition such as you describe where, evidently, two or three valves are making most of the noise, is usually the most annoying to the car owner. We would suggest that, after having run this engine until it is thoroughly hot, you take a .006 feeler gage and, with the engine running, insert the feeler gage between the tappet and the valve stem. If the clearance is in excess of .006 there will be an intermittent drag on the feeler as you withdraw it. If the clearance is exactly .006, there will be a constant drag, but as the tappet lifts the valve it will, of course, pinch the feeler. Of course you have a set of tappet adjusting wrenches with which to take care of this work while the engine is running and while it is hot. And we presume, also, that you have the feeler gage that has the long leaves in it. Such equipment is most essential in this kind of work.

To check for the noisy valve it would be well to take a .004 leaf of your feeler gage and with the engine running, insert it first in one and then in another valve that is suspected of being the noisiest. If this reduces the noise you

may be sure that it is the extra clearance that is making the excessive noise.

We do not believe that the noise you are bothered with is caused by the valve head striking the seat.

Another cause of noise is looseness of the push rods in their guides. You can check up on this with the engine running. Take a slim stick and hold it against the side of the tappet screw as the tappet works up and down and if a slight side pressure eliminates the noise, it is an indication that the push rods are loose in their guides. Obviously, the cure for this is to install over-size push rods.

### Meter Shorts Generator

Why will a Dodge Bros. generator show no charge when an ammeter is connected between the positive generator terminal and the frame of the car with the cable removed from the generator? I know the generator is charging O. K. when normally connected.—Bert M. Hennis, Buckeye Garage, Strasburg, Ohio.

**A**N ammeter has a very low resistance and acts as a short circuit. This means that it acts as a ground connection on the live generator terminal. Accordingly when the machine starts up it will generate a slight amount of current due to the residual magnetism and if the machine is O. K. there must be some current going through the ammeter. This connection however holds down the voltage of the machine to such an extent that the field winding does not get any appreciable current.

We would anticipate, however, that you would get enough short circuit current to show on the ammeter. We have known of tests of this kind showing anywhere from five to ten amperes short circuit current. If the machine really is O.K. you might make the test in a little different manner. Run it with the wire off at fairly low engine speed and while running in this fashion connect the ammeter. The needle should suddenly jump up and show a reading and then if a short circuit connection really does kill the machine, the ammeter needle should then drop back to zero or nearly to zero.

### Production in 1895

In what year did the automobile industry begin the manufacture of automobiles for general use? John R. Hubbard, Captain, Quartermaster Corps, Commanding, First Motor Transport Co., Fort Jay, N. Y.

**A**CCORDING to information from *Facts and Figures of the automobile industry*, published by the National Automobile Chamber of Commerce, four cars were produced and sold in 1895.

## [READERS' CLEARING HOUSE]

**Home-Made Charger Has Low Output**

I have an Auto-Lite generator, type GH, which I belted to an electric motor in order to use it for battery charging. This is a third brush regulated machine and, although the third brush is advanced as far as it will go, will not charge over 16 amp. Is there any way to change the wiring to increase the output. I have been told that should I connect three or four batteries to this in series that the voltage in the batteries would be so low that they would fail to operate a starter. Is that correct? I charged a 12-volt battery with it and it works fine.—James H. Fash, 348 N. East Street, Farmington, Ill.

**Y**OU cannot change this generator in any way to increase the output without seriously over-heating the machine. By removing the lead from the third brush and connecting it to the grounded brush of the generator, you can probably raise the output a few amperes by increasing the speed of the machine. By making this change you will destroy the regulating feature of the third brush and your output will be in proportion to the generator r.p.m. within certain limits. However, any output in excess of 16 amp. is very likely to ruin this generator. The test figures for this machine at 8 volts are as follows:

Amp.	R.P.M.
5 .....	800
10 .....	1050
15 .....	1550
15-16 .....	2000

You can readily see that after a speed of 1500 r.p.m. is reached that running the speed up an additional 33 1/3 per cent increases the output one amp. at the most.

We would not recommend connecting three or four 6-volt batteries in series on this machine as you would probably find that you would be bothered with over-heating. You will appreciate that the higher the voltage goes the more current passes through the field winding and, therefore, there is danger of burning out the machine when operating it on three or four 6-volt batteries.

**Runs Out of Gas When Wide Open**

I have a Chrysler 60, 1926 Model. I can take this car and drive it with wide open throttle and it will run 65 m.p.h. for a couple of miles and then die down to 45 or 50 and spit through the carburetor. My opinion is that it isn't getting gas enough. The gas line, vacuum tank and carburetor seem O.K. This car will run 70 m.p.h. when everything is right. Would a Red Head still increase its speed and efficiency?—W. Donald Maurer, Spencer, Iowa.

**T**HE trouble that you are having is that you are running out of gas in the vacuum tank. This is caused by the wide open throttle which destroys the vacuum in the intake manifold. To

eliminate this trouble the only thing you can do is to occasionally take your foot partly off the throttle and to permit the vacuum tank to suck up another load of gas. Of course if you are going to use this car continuously with the throttle wide open, it would probably be better to put on a gasoline pump. There is reason to believe that you would get even better performance and economy with a Red Head. This would not, however, eliminate the gasoline trouble that you are having.

**A Puzzle That is Very Easily Solved**

I have a Buick at the shop I am working in that has a knock similar to a push rod roller. We ground the valves, checked the valve clearance, installed new rollers and pins in the push rod assembly. We also examined all wrist pins and pistons and they are O.K. We installed new timing gears which took out a clattering noise, but still there is this distinct clicking knock. It seems that the sound is on the camshaft near No. 4 or No. 5 cylinders. We examined all cam bearings, took up the main and connecting rods which, however, were not very loose. This engine has only run 10,000 miles and the knock has gradually developed.

This knock is most noticeable when the motor idles slowly, but also knocks faster according to the speed of the engine. The crankshaft has 1/64 in. end play. Could this be causing the knock? It always sounds to me as though the rollers on each of the camshafts were making the noise, but as we renewed all of them and rechecked them for being true, and easy rolling, this does not seem possible. If the guides that hold these push rods are worn over .003 in. would this cause a knock?

In another Buick engine which has the same knock, we installed new timing gears, a new bronze gear that drives the oil pump and runs against the camshaft; and we also took up the connecting rods and main bearings, ground the valves, checked all alignment of connecting rods and examined all wrist pins and rings, but still when we started up the engine the same knock was there. We also checked the ignition and valve timing, which is O. K. This engine also had 1/16 in. end play in the crankshaft. Using a sounding rod the knock seems to be loudest near the water pump housing, so we disconnected the water pump and still the knock remains. We were very careful in installing the timing gears not to burr any of the teeth. These engines all seem to be very quiet when they are new, but after about 10,000 to 12,000 miles they develop this knock and become rather noisy. Anything that you can suggest will be greatly appreciated.—Washington Serviceman.

**W**E are quite certain that the knock which you refer to is caused by a weak push rod return spring. We have run into this difficulty before, just as you have described it and the trouble was easily and economically overcome by installing new push rod return springs. This would not be an expensive thing for the owners to have done in your garage, or in fact in the large factory service stations, and would make the use of their cars much more enjoyable.

**Truck is All Right**

One of my customers has a 1926 one-ton Graham truck which lacks power. This truck has plenty of speed. The electrical parts are O.K., and the compression is as good as is possible to make it. There seems to be no drag anywhere; that is, the truck rolls freely. The engine seems perfect. I checked the ignition timing, which I find O.K. On checking up on the valve timing I found the exhaust valves closing at 8 deg. past upper dead center, which I think is all right. The intakes open just a little when the piston is within 3/4 in. of dead center, and at 10 deg. past top dead center they open all the way. I set the valves with .005 clearance between the valve stem and push rod. It seems to me that the side of the can is too full because of the way the intake valve acts. I also tried to overcome this slight lift in the intake by increasing the clearance, but this resulted in less power. You may wish to know what I call power. I expect a one-ton truck to spin its rear wheels on dry soil if necessary when loaded with one ton. This truck acts just as though it had too high a gear ratio. Any help would be greatly appreciated.—W. D. Kallasch, Versailles, Ill.

**W**E are going to tell you frankly that we think you are expecting too much from this truck. We don't know of any 1-ton speed truck that can spin its wheels on dry soil when loaded with one ton. You will recognize that in order to get high-speed road operation you must have a fairly low axle ratio. The ratio in the case that you refer to is 5.1 to 1 and it is too much to expect this truck to be able to spin its wheels on dry ground. We might mention that the correct tappet clearance for this truck is .006 in. on the inlet valve and .007 in. on the exhaust valve, this clearance to be set when the engine is thoroughly heated. It is perfectly correct for the exhaust valve to close at 8 deg. past upper dead center, and the intake should open at 10 deg. past top dead center. Possibly this extra clearance that we have just referred to will take care of this early opening that you mention in your question.

**Burns Out One Bulb**

What causes my 1926 model Chevrolet to continually burn out the bulbs in the left head lamp without affecting the other bulbs?—Cleo Cannon, Prairie City, Ill.

**G**ENERALLY the burning out of a bulb is the direct result of a loose connection in the charging circuit between the generator and the battery. In your particular case we do not believe that is the trouble, because this would burn out the other bulbs also. We suspect that your trouble is the result of looseness of the socket in the headlight, which would permit the socket to vibrate violently. This violent vibration would break the filament mechanically and give the same effect as burning out.



## 12 WAYS TO SELL THE HIGH-PRICED ITEMS

(Continued from page 22)

**7.** It's not necessary to knock cheap merchandise with obvious intent. To do so will cause an unfavorable reaction nine times out of ten. A western dealer uses a very adroit method, with the sting removed, but effective. When the customer calls attention to the fact that he can purchase a kindred item elsewhere for less money, he replies: "No doubt you can. That merchant is better qualified to tell you what his goods are worth than I am. In fact, he seems to have told you already. Of course, you can get cheaper merchandise than I am showing you, but for service, comfort, beauty and so on, I can give you more for your money."

**8.** Many people buy blindly by faith. That's why the testimonial, names of prominent users, and so on, are effective tools to use in selling quality goods. No one will recommend cheap merchandise, for no self-respecting individual wants to be known as a cheap buyer. If the man of means and prominence does resort to the bargain counter, he does so without blare of trumpets. Many customers patronize a merchant, or buy a certain article, because so-and-so does. The manufacturer makes much of the testimonial in his advertising. The retailer can effectively use the potency of prominent names by casually mentioning these customers in his sales talk. A dealer in high-grade tires in Kelso, Washington, displays the names of 100 well-known customers in his store. The owners of the names do not object, and they add considerable prestige to the store and the merchandise.

**9.** The open counter display is generally associated with the bargain basement of the "five and ten," but nevertheless this tool of merchandising can help the quality dealer. An automotive supply and accessory dealer of Seattle increased his volume 30 per cent by inaugurating open counter display featured articles. The customer who is compelled to wait a minute or two for service, finds many things to interest him on these counters. He does not begin fretting with impatience, but picks up this and that from mere curiosity. Finally he lights on something that he has wanted for a long time, but neglected to buy. The desire gets stronger with the actual han-

dling of the article, and price becomes a secondary consideration. With related articles grouped together, such as greasing equipment, ignition parts and accessories, cleaning and polishing supplies, one article suggests another without a spoken word. The unit sale can thus be automatically increased without great effort.

**10.** This dealer, who caters to the best trade, refuses to handle the cheaper merchandise. Neither does he handle standard goods of national reputation, if such items are also handled by the price-cutters. "That would put me in the gyp class," he explains. "The customer shopping around would see the same line in both stores and might easily conclude that the entire stock is more or less identical—except the price. This would weaken my position, even though I do not openly attack such a competitor's class of merchandise."

**11.** Another Washington dealer both handles and advertises cheap merchandise merely as a magnet to attract people to his store. Then he uses every effort to sell the quality lines when the bargain hunter arrives. "Certainly I can't convince of quality until they see my wares," he argues. "And newspapers are full of bargain prices. I fight fire with fire, but my fire is mostly smoke. Bargain items are always cash, but my credit sales keep me in business, for the credit customer never quibbles about price."

**12.** "Figuring out how little a rug costs, by the week, by the year, is a sales stunt which I find always proves effective, because it enables the customer to see the price in its true perspective," says an Oriental rug dealer of Everett. Instead of thinking only of the first cost, which must be paid at once, the customer is led to weigh advantage to be gained over the long period against the outlay, if divided into the same units as his enjoyment of the service will be divided.

Maintaining price in the face of cut-throat competition may slow up volume, but it is better to sell \$100,000 worth of merchandise at a profit than \$1,000,000 worth at a loss.

## Selling Service and Cars Together

(Continued from page 28)

are still being given out—or at least the original booklet to each customer—by the company, and usually at the time of the closing of the sale. Likewise, the \$10 bonus checks are always mailed out in the name of the company, and no part of this payment is charged against the commission of the individual salesman.

It is said that no Hudson or Essex new owner yet has shown any inclination not to accept one of these bonus books, at the time of the close of the sale; though an occasional new-car purchaser does jokingly remark that he will give it to "his wife," and it is a matter of record that the greater percentage of prospect cards are mailed back by women. At the time of the giving out of the bonus booklet it is explained to the new owner that this offer is being made by the company merely as a small expression of its appreciation for promised cooperation.

Nearly all such prospect cards returned are for the lower-priced-level Essex cars.

Though given out in the name of the company, it is the business of the salesmen to follow up these bonus books, to encourage the owner to use them, and to send the owner more books if he has need of them. One good Essex booster, who keeps his own car handy for demonstration at the filling station where he works, in less than six months of time has already used up nearly a dozen of these books—and about 75 per cent of prospect names that he has mailed in have brought him back \$10 checks.

The company has received many compliments from owners, because of the consistent follow-up courtesy of the salesmen who are carrying out the details of the new service-selling plan.

# AUTOMOBILES AND THE AIR

(Continued from page 18)

Just try to picture hundreds of thousands of airplanes landing on roofs of downtown office buildings to seek storage while their owners go about their business. Imagine the problems of city planners and engineers trying to find room for them all. I believe your own thought processes will reveal the impossibility of the airplane in its present form becoming so all-universal.

Even today airplane operators rely to a large degree on automobiles. Primarily they depend upon them for taxi service. I recall one instance where a large air transport company maintains speedy cars to take up the burden where airplanes may be forced to leave off. This is no reflection on the airplane, but does illustrate the fact that airplane organizations recognize the need for relying on automobiles for the functions they can perform when the airplane cannot meet the requirement. (Of course I am not discussing routine work of automobiles.)

The particular company in mind—Pacific Air Transport—maintains a fleet of fast automobiles to keep the mail moving when planes are forced down by adverse weather. For example, the company maintains a car capable of 85 miles an hour for driving the mail 150 miles from Los Angeles over the mountains to Bakersfield. During certain periods of the year this trip is made as often as 18 times in one month. The need for this car is most urgent when fog and clouds blanket the hill tops at night and safe flying becomes impossible. By this speedy automobile service, the mail goes through, the length of the Pacific Coast to Seattle, between midnight and noon!

"By driving mail in this way," A. K. Humphries, vice-president and general manager of P.A.T., explains, "we are able to keep our service nearer to perfection, and insure full value to every man, woman and child who invested three extra pennies in speed."

Airplanes and automobiles do not supplement each other in the generic sense. The fields are separate, though closely allied. Present efforts to arrange trans-continental air lines take into consideration ground travel. The organization with which Col. Charles A. Lindbergh is associated plans to send its passengers part-way by train. Another company will use automobiles and airplanes between Los Angeles and Chicago.

Here each vehicle performs a mission neither of the others could accomplish. The psychology of the public is taken into consideration. People are not yet ready to fly at night. Some do not wish to fly over mountainous terrain. To please them, schedules are arranged which will permit night travel to be made on the ground.

Such arrangements reflect not at all on any of these machines. I reiterate that they fall into separate classifications with reference to fields of usefulness, with occasional overlapping.

I talked recently with a gentleman who merchandises both automobiles and airplanes. His viewpoint on the relationship of the two vehicles may be of interest.

"Since a great many dealers in automobiles came from the ranks of the buggy dealers," he said, "it is only natural to assume that the evolution from the automobile salesman and dealer will be the air man; but since it is a foregone conclusion that the aeroplane never will displace the automobile, it is only logical to assume that this new transportation will be sold by the same units to which it is so closely allied, not only because both are transportation, but primarily because automobile organizations are so well adapted to add aerial transportation without adding unusual overhead expense.

"To prove this statement further, I can recall not long ago seeing a buggy, a phaeton and an automobile on a local salesroom floor.

"It may be in the distant future—who knows?—that the airplane will be a separate business from the automobile, but no one at present qualifies better from the standpoints of economics, ability, organization and experience in selling transportation than the automotive merchant."

I am sure no one disagrees with the statement that it is a "foregone conclusion" that airplanes never will take the place of the automobile. What, then, will be the place of the plane in family life?

Where today a "second car" for each family is being advocated, tomorrow the "second car," or perhaps the third, will be an airplane. As soon as automobile users realize plane operation is virtually as simple as driving the family car around the corner, the rush will be on. Then aviation will become widespread in its application to everyday life.

If the family wishes to take a short trip, it will utilize the automobile. If a longer or speedier journey is required, the airplane will fill the need. Longer week-ends, in time and distance, will be provided. As James Menefee, president of the New Orleans Airport and an automobile dealer of that city, has remarked, "While the automobile never will be replaced for city use and short trips, the airplane soon will be used by many people because of the speed that can be attained; and in this age time-saving is important."

The time is coming when planes will fill the air in hundreds of thousands. Unlike previous means of transportation, the airplane requires places of little population for most effective use. By that I mean its terminals and fields of experiment, operation and growth have been located away from densely populated centers. The converse is true of the automobiles. What the future holds cannot be predicted with any degree of certainty, but airplanes and automobiles will continue in their own ways to serve the world, each without hindrance from the other.





# Prices, Weights and Equipment of Current Passenger Car Models

No important changes in Prices or Specifications have been announced by the car manufacturers during the past week.

Passengers and Model	F.O.B. Price	Doors	Net Weight*	Standard Equipment
<b>CADILLAC "341"</b>				
"Fisher"				
2p. Roadster.....	\$3350	2	4690	aeghlmpnpx
4p. Phaeton.....	3450	4	4725	aeghlmpnpx
4p. Sp. Phaeton.....	3950	4	5110	Beghiklmap
				rsx
7p. Touring.....	3450	4	4760	aeghlmpnpx
2-4p. Coupe.....	3295	2	4930	aeghlmpnpx
2-4p. Conv. Coupe.....	3505	2	4835	aeghlmpnpx
5p. Coupe.....	3595	2	4910	aeghlmpnpx
5p. Sedan.....	3695	4	5040	aeghlmpnpx
5p. Town Sedan.....	3495	4	5030	aeghlmpnpx
7p. Sedan.....	3795	4	5140	aeghlmpnpx
7p. Imp. Sedan.....	3995	4	5180	aeghlmpnpx
"Fleetwood"				
5p. Sedan.....	\$4195	4	.....	aeghlmpnpx
5p. Sedan Cab.....	4195	4	.....	aeghlmpnpx
7p. Sedan.....	4295	4	.....	aeghlmpnpx
7p. Sedan Cab.....	4195	4	.....	aeghlmpnpx
5p. Imperial.....	4345	4	.....	aeghlmpnpx
5p. Imperial Cab.....	4345	4	.....	aeghlmpnpx
7p. Imperial.....	4345	4	.....	aeghlmpnpx
5p. Club Cab't.....	4395	.....	.....	.....
5p. Phaeton Sed.....	5750	.....	.....	.....
5p. Im. Pha. Sed.....	5995	.....	.....	.....
..... Town Cab Con.....	5250	4	.....	aeghlmpnpx
..... Town Cab Con.....	5500	4	.....	aeghlmpnpx
..... Lim Bro'm Con.....	5500	4	.....	aeghlmpnpx
<b>CHANDLER</b>				
"65"				
5p. Touring.....	\$ 895	4	2540	ahmn
5p. Sportster.....	995	4	2635	ahmn
3p. Coupe.....	875	2	2635	ahmn
5p. Sedan.....	895	4	2785	ahmn
2-4p. Coupe.....	955	2	2685	ahmn
5p. DeL. Sedan.....	995	4	2785	ahmn
2-4p. Cabriolet.....	1075	2	2645	ahmn
"Royal 75"				
5p. Sedan, 2d.....	1295	2	3195	ahmn
2-4p. Coupe.....	1295	2	3125	ahmn
5p. Sedan, 4d.....	1395	4	3320	ahmn
5p. DeL. Sedan.....	1495	4	3320	ahmn
"Big Six"				
7p. Touring.....	1725	4	3360	ahjlmnw
5p. Met. Sedan.....	1525	4	3380	ahmnt
4p. Coupe.....	1725	2	3535	ahmn
3p. Ctry. Club.....	1725	2	3535	ahmn
2-4p. Cabriolet.....	1825	2	3450	ahmn
7p. Sedan.....	1925	4	3895	ahmnt
7p. Berline Sed.....	2025	4	4000	ahmnt
"Royal 85"				
7p. Touring.....	1995	4	3645	ahjlmnpw
4p. Coupe.....	1925	2	3640	ahmnt
4p. Ctry. Club.....	1925	2	3640	ahmnt
5p. Sedan.....	1795	4	3900	ahmnt
7p. Sedan.....	2195	4	3950	ahmnt
3-5p. Cabriolet.....	2095	2	3660	ahmnt
5p. DeL. Sedan.....	1995	4	3900	ahjlmnpw
7p. Berline Sed.....	2295	4	.....	ahjlmnpw
<b>CHEVROLET</b>				
2p. Roadster.....	\$495	2	2030	dr
5p. Touring.....	495	4	2090	dr
5p. Coach.....	585	2	2360	dr
2p. Coupe.....	595	2	2235	dr
5p. Sedan.....	675	4	2435	dr
2-4p. Con. Sp. Cab.....	695	2	2265	dr
5p. Imperial.....	715	4	2405	dr
<b>CHRYSLER</b>				
"65"				
2-4p. Roadster.....	\$1065	2	2730	aghn
5p. Touring.....	1075	4	2776	aghn
2p. Bus. Coupe.....	1040	2	2780	aghn
5p. Sedan, 2d.....	1065	2	2905	aghn
5p. Sedan, 4d.....	1145	4	2960	aghn
2-4p. Coupe.....	1145	2	2875	aghn
"75"				
2-4p. Roadster.....	1555	2	3190	aeghlmn
5p. Phaeton.....	1795	4	3410	.....
5p. Phaeton.....	1835	4	.....	.....
7p. Phaeton.....	1865	4	3235	.....
2-4p. Coupe.....	1535	2	3235	aghlmn
5p. Royal Sedan.....	1535	4	3410	aghlmn
4-5p. Town Sedan.....	31	.....	3360	aghlmn
5p. Crown Sed.....	1655	.....	3365	.....
2-4p. Con. Coupe.....	1795	.....	3320	a
5p. Con. Sedan.....	2345	.....	3430	a
<b>"Imp. 80"</b>				
2-4p. Roadster.....	\$2795	3	3870	aeghlmpnpx
5p. Sedan.....	2945	4	4125	aeghlmpnpx
7p. Sedan.....	3075	4	4250	aeghlmpnpx
5p. Town Sedan.....	2995	4	4140	aeghlmpnpx
7p. Sedan Lim.....	3495	4	4285	aeghlmpnpx
<b>CUNNINGHAM</b>				
"V-7"				
4p. Sp. Touring.....	\$6500	4	4500	Ceghiklmpn
				rsx
7p. Touring.....	7000	4	4600	Ceghiklmpn
				rsx
4p. Coupe.....	8000	2	4700	Ceghiklmpn
				rtx
6p. Limousine.....	8500	4	5000	Ceghiklmpn
				rtx
<b>DAVIS "99"</b>				
4p. Polo Rdster.....	\$1795	2	3295	aeghlmpn
5p. Touring.....	1795	4	3325	aeghlmpn
4p. Coupe.....	1865	2	3345	aeghlmpn
5p. Emp. Sedan.....	1885	4	3475	aeghlmpn
<b>DE SOTO</b>				
5p. Touring.....	\$845	4	2455	aghn
2-4p. Roadster.....	845	2	2365	aghnw
2p. Bus. Coupe.....	845	2	2465	aghn
2-4 DeL. Coupe.....	885	.....	2520	aghn
5p. Sedan.....	845	2	2580	aghn
5p. DeL. Sedan.....	835	4	2640	aghn
	955	4	2660	aghn
<b>DIANA "St. 8"</b>				
5p. Phaeton.....	\$1695	4	3100	agmn
5p. Roy. Rdster.....	1795	2	2995	agmnw
5p. P.B. Rdster.....	1895	2	2995	Bgmnw
5p. Cab. Rdster.....	1995	2	3160	agmn
5p. Collap. Rdster.....	2195	2	3160	aghlmpn
5p. 2d. Sedan.....	1795	2	3170	aghlmpn
5p. 4d. Sedan.....	2095	4	3275	aghlmpn
<b>DODGE BROS.</b>				
"Std. 6"				
2p. Coupe.....	\$375	2	2515	aghr
5p. Sedan.....	895	4	2721	aghr
5p. Sedan DeL.....	970	4	2827	aghr
"Victory 6"				
5p. Touring.....	\$395	4	2703	aghlmpn
4p. Roadster.....	995	2	2873	aghlmpn
5p. Sp. Touring.....	1245	4	2940	Beghiklmpn
5p. Sp. Roadster.....	1245	2	2895	Beghiklmpn
2p. Coupe.....	1045	2	2629	aghlmpn
4p. Coupe DeL.....	1095	4	2870	Beghiklmpn
5p. Sedan.....	1170	4	2943	aghlmpn
5p. DeL. Sedan.....	1295	4	3100	Beghiklmpn
"Senior"				
4p. Sp. Roadster.....	\$1815	2	.....	Beghiklmpn
5p. Vic. Bro'm.....	1575	2	3468	aghlmpn
2-4p. Coupe.....	1675	4	3572	aghlmpn
2-4p. Sport Sed.....	1715	4	3719	Beghiklmpn
2-4p. Sp. Coupe.....	1795	2	.....	Beghiklmpn
5p. Landau Sed.....	1845	4	.....	Beghiklmpn
<b>du PONT "E"</b>				
4p. Roadster.....	\$2800	.....	3700	afghiklmpnpx
5p. Touring.....	2800	4	3850	afghiklmpnpx
4p. Coupe.....	3200	.....	3850	afghiklmpnpx
4p. Conv't Coupe.....	3400	2	3900	afghiklmpnpx
5p. Sedan.....	3400	.....	4100	afghiklmpnpx
5p. Con. Sedan.....	3750	4	4100	Bfghiklmpnpx
"g"				
141" W.B.				
..... Roadster.....	\$4360	.....	.....	Beghiklmpn
5p. Phaeton.....	4560	4	.....	Beghiklmpn
7p. Touring.....	4560	4	.....	Beghiklmpn
..... Conv. Coupe.....	4360	.....	.....	Beghiklmpn
..... Club Sedan.....	4360	.....	.....	Beghiklmpn
5p. Sedan.....	4410	.....	.....	Beghiklmpn
5p. Victoria.....	4410	.....	.....	Beghiklmpn
5p. Limousine.....	4675	.....	.....	Beghiklmpn
7p. Sedan.....	4675	.....	.....	Beghiklmpn
7p. Limousine.....	4875	.....	.....	Beghiklmpn
..... Conv. Sedan.....	5150	.....	.....	Beghiklmpn
..... Town Cab.....	5750	.....	.....	Beghiklmpn
<b>DURANT</b>				
"Four"				
..... Roadster.....	\$595	.....	1950	ah
..... DeL. Rdster.....	675	.....	.....	ah
..... Coupe.....	.....	.....	2185	ah
5p. Sedan.....	595	.....	2330	ah
5p. Sedan.....	695	.....	2480	ah
..... DeL. Sedan.....	775	4	.....	ah
"60"				
..... Roadster.....	\$755	.....	.....	ah
..... DeL. Rdster.....	845	.....	.....	ah
..... Coupe.....	755	2	.....	ah
5p. Sedan.....	765	2	.....	ah
5p. Sedan.....	845	4	.....	ah
..... DeL. Cab.....	895	.....	.....	ah
..... Sedan.....	935	4	.....	ah
"65"				
5p. Touring.....	795	4	2385	aghlmn
2-4p. Sp. Rdster.....	1025	2	2385	Beghiklmpn
2-4p. Collap. Cab.....	1045	2	2525	aghlmn
2-4p. Coupe.....	975	2	2425	aghlmn
5p. Sedan.....	975	2	2600	aghlmn
5p. Sedan.....	1075	4	2675	aghlmn
5p. Brougham.....	1175	4	2695	Beghiklmpn
"75"				
5p. Sedan.....	1385	4	3130	aghlmn
5p. Brougham.....	1550	4	3180	Beghiklmpn
<b>ELCAR</b>				
"6-70"				
4p. Roadster.....	\$1295	2	2580	ahnr
5-7p. Touring.....	1295	4	.....	ahnr
5p. Brougham.....	1295	2	2670	ahnr
5p. Sedan.....	1295	4	2750	ahnr
"8-78" Std.				
2-4p. Roadster.....	1395	2	.....	ahnr
5p. Touring.....	1395	4	.....	ahnr
2-4p. Coupe.....	1395	2	.....	ahnr
5p. Sedan.....	1395	4	.....	ahnr
"8-78 Royal"				
4p. Roadster.....	1495	.....	.....	aeghlmpn
5p. Touring.....	1495	4	.....	aeghlmpn
4p. Coupe.....	1495	.....	.....	aeghlmpn
5p. Sedan.....	1495	.....	.....	aeghlmpn
"8-82"				
5-7p. Touring.....	1695	4	.....	aeghlmpn
2-4p. Roadster.....	1695	2	.....	aeghlmpn
4p. Coupe.....	1695	2	.....	aeghlmpn
5p. Std. Sedan.....	1695	4	3490	aeghlmpn
5p. Prin. Sedan.....	1895	4	.....	aeghlmpn
"8-91"				
2-4p. Roadster.....	1995	.....	.....	aeghlmpn
4p. Coupe.....	2295	.....	.....	aeghlmpn
5p. Prin. Bro'm.....	2295	4	.....	aeghlmpn
5p. Prin. Sedan.....	2295	4	.....	aeghlmpn
"120"				
5-7p. Touring.....	2465	4	.....	aeghlmpn
5p. Std. Sedan.....	2465	4	.....	aeghlmpn
7p. Std. Sedan.....	2565	4	.....	aeghlmpn
<b>ERSKINE SIX</b>				
"52"				
5p. Touring.....	\$835	4	.....	aghr
5p. Club Sedan.....	860	2	.....	aghr
2p. Cabriolet.....	875	2	.....	aghr
5p. Sedan.....	945	4	2600	aghr
4p. Royal Cab.....	995	2	.....	Bghjlr
5p. Royal Sedan.....	1045	4	2600	Bghjlr
<b>ESSEX</b>				
"Super Six"				
5p. Phaeton.....	\$750	4	2305	ahmn
2-4p. Roadster.....	850	2	2365	ahmn
2-4p. Coupe.....	775	2	2335	ahmn
5p. Sedan.....	795	4	2660	ahmn
5p. Coach.....	735	2	2560	ahmn
<b>FALCON-KNIGHT</b>				
"12"				
5p. Touring.....	995	4	2700	.....
4p. G.G. Rdster.....	1195	2	2935	Beghiklmpn
5p. Sedan.....	995	2	2800	aghr
2-4p. Coupe.....	1045	2	2800	aghr
5p. Sedan.....	1095	4	2875	aghr

\*-Italic figures denote shipping weight.  
A—Wood wheels with spare.  
B—Wire wheels with spare.  
C—Optional wheels with spare.

e—Type of wheels optional.  
d—Disk wheels with spare.  
f—Front bumper.  
g—Shock absorbers or snubbers.  
h—Automatic windshield wiper.

## KEY TO SYMBOLS

i—Trunk and trunk rack.  
j—Trunk rack, no trunk.  
k—Spare tire.  
l—Spare tire lock.  
m—Engine heat indicator.  
n—Dash gasoline gauge.

o—Car heater.  
p—Cigar lighter.  
q—Rear traffic signal.  
r—Spotlight.  
s—Vanity and smoking set.  
t—Smoking set.

u—Vanity set.  
v—Windshield wings.  
w—Clock.  
x—Overall length.  
y—Prices on application.

## Prices, Weights and Equipment of Current Passenger Car Models

Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment
<b>FORD "A"</b>					<b>AUDSON</b>					<b>LASALLE</b>					<b>MARMON</b>				
2-4p. Roadster...	\$385	2	2066	Bgnr	118" W.B.					125" W.B.					"65"				
5p. Phaeton...	395	2	2150	Bgnr	2-4p. Roadster...	\$1295	2	3355	ahmnr	2p. Roadster...	\$2345	2	4020	aeghlmnprx	2-4p. Roadster...	\$1565	2	2700	ahmnrw
2p. Bus Coupe...	495	2	2170	aghnr	4-4p. Coupe...	1295	2	3525	ahmnr	4p. Phaeton...	2295	4	4170	aeghlmnprx	5p. Sedan...	1465	4	2897	ahmnr
5p. Tudor Sedan...	495	2	2336	Bghnr	5p. Coach...	1250	2	3575	ahmnr	4p. Sp. Phaeton...	2875	4	4450	Beghikmnp	4p. Vic. Coupe...	1520	2	2887	ahmnr
2-4p. Spt. Coupe...	550	2	2223	Bghnr	5p. Sedan...	1325	4	3645	ahmnr					2-4p. Coupe...	1465	2	2827	ahmnr	
2p. Std. Coupe...	550	2	2220	Bghnr	127" W.B.					134" W.B.				2-4p. Roadster...	1965	2	3007	ahlmnpwx	
5p. Fordor Sedan...	625	2	2386	Bghnr	p. Phaeton...	1650		1630		5p. Family Sed...	2450	2	4580		2-4p. Coupe...	1965	2	3037	ahlmnpwx
					p. Landau Sed...	1650		1805	aghmnru	2-4p. Coupe...	2495	2	4340		4p. Vic. Coupe...	2065	2	3066	ahlmnpwx
					p. Std. Sedan...	1450		1710	aghmnru	5p. Sedan...	2595		4165		5p. Sedan...	1965	4	3104	ahlmnpwx
					5p. Victoria...	1650		1710	aghmnru	5p. Con. Landau...	2725		4365	aeghlmnprx					
					7p. Sedan...	1950		3945	aghmnru	7p. Sedan...	2775	4	4645	aeghlmnprx					
										7p. Imp. Sedan...	2875	4	4790	aeghlmnprx					
										5p. Trans. Cab...	4900	4	4						
<b>FRANKLIN</b>					<b>HUPMOBILE</b>					<b>LINCOLN</b>					<b>MOON "6-60"</b>				
"Series 12 B"					"A-6"					"8"					5p. Phaeton...	\$895	4	2340	an
119 W.B.					5p. Phaeton...	\$1425	4	2900	aghnr	2-4p. Club Rdstr.	4600		4740	aeghlknprx	5p. Coach...	995	2	2420	an
3p. Coupe...	\$2625		3450	aeghlknprx	2-4p. Sportster...	1435	2	2820	aghnr	7p. Spt. Touring...	4600	4	4940	aeghlknprx	5p. Roy. Sedan...	1195	2	2520	ahin
4-5p. Vic. Bro'm...	2760		3550	aeghlknprx	7p. Phaeton...	1455	4	2955	aghnr	4p. Spt. Phaeton...	4600	4	4910	Beghikmnpwx	5p. Roy. Sedan...	1295	4	2605	ahu
5p. Sedan...	2790		3580	aeghlknprx	5p. Sedan 2d...	1345	2	2975	aghnr	4p. Coupe...	4600	2	4805	aeghlknprx					
5p. Ox. Sedan...	2790		3580	aeghlknprx	4p. Coupe...	1385	2	2965	aghnr	4p. Sedan...	4800	4	4930	aeghlknprx	5p. Touring...	995	4	2340	agh
5p. Spt. Sedan...	2910		3630	aeghlknprx	5p. Sedan...	1395	4	3040	aghnr	5p. Sedan...	4800	4	5010	aeghlknprx	3p. Roadster...	1195	2	2295	agh
3-5p. Conv't Cpe...	2850		3510	aeghlknprx	2-4p. Cabriolet...	1475		2965	aghnr	2p. Coupe...	5000		4720	aeghlknprx	5p. Sedan, 2d...	1295	2	2520	agh
128" W.B.					5p. Phaeton...	1405	4	3285	aghmn	7p. Sedan...	5000	4	5050	aeghlknprx	5p. Sedan, 4d...	1345	4	2605	agh
2-4p. Sp. Runab't...	2975		3440	aeghlknprx	2-4p. Sportster...	1915		3335	aghmn	7p. Limousine...	5200	4	5165	aeghlknprx	2p. Std. Roadster...	1295	2	2720	agh
5p. Spt. Touring...	2975	4	3630	aeghlknprx	7p. Phaeton...	1935		3355	aghmn	4p. Berline...	5500		5070	aeghlknprx	... Roy. Roadstr...	1395		2635	agh
7p. Touring...	3060	4	3630	aeghlknprx	5p. Sedan, 2d...	1825	2	3385	aghmnv	7p. Brougham...	6000		5380	aeghlknprx	5p. Sedan...	1395	4		agh
7p. Sedan...	2980	4	3790	aeghlknprx	4p. Coupe...	1865		3375	aghmnv	6p. Ber. Landau...	6500		5090	aeghlknprx	5p. Sedan...	1445	4	2810	agh
7p. Ox. Sedan...	2980	4	3790	aeghlknprx	5p. Sedan, 4d...	1875	4	3455	aghmnv	7p. Cabriolet...	6600		4985	aeghlknprx	5p. Sedan...	1445	4	2810	agh
7p. Limousine...	3080	4	3870	aeghlknprx	2-4p. Cabriolet...	1955		3345	aghmnv	7p. Le Baron Cab	7000		5165	aeghlknprx	... Cabriolet...	1495		2880	agh
					5p. Town Sedan...			3345	aghmnv	7p. Holbrook Cab	7200		5205	aeghlknprx	... Sedan...	1595		3100	agh
										7p. Collap. Cab	7300		5140	aeghlknprx	... Petite Sedan...	1595		3080	agh
														... Vic. Coupe...	1695		3200	agh	
								</											

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b - Wire wheels.  
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D—Disk wheels with spare.  
d—Disk wheels.  
e—Front and rear bumpers.  
f—Front bumper.  
g—Shock absorbers or snubbers.  
h—Automatic windshield wiper.

- i—Trunk and trunk rack;
- j—Trunk rack, no trunk;
- k—Spare tire.
- l—Spare tire lock.
- m—Engine heat indicator.
- n—Dash gasoline gage.

- Car heater.
- p—Cigar lighter.
- r—Rear traffic signal.
- Spotlight.
- t—Vanity and smoking set.
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v—Vanity set.  
w—Windshield wings.  
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## Prices, Weights and Equipment of Current Passenger Car Models

Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment	Passengers and Model	F.O.B. Price	Doors	Net Weight	Standard Equipment
<b>OLDSMOBILE</b>					<b>PIERCE-ARROW</b>					<b>ROLLS ROYCE</b>					<b>STUTZ "BB"</b>				
<b>"F-28"</b>					<b>"81"</b>					<b>"Si. Ghost"</b>					<b>"Custom"</b>				
2-4p. Sp. Rdstr.	\$995	2	2610	aeghmnr	2p. Runabout.	\$2600	2	3350	afghlmnr	Open Models.				Bghjkmprx	2p. Speedster.	\$3495	2	4478	aeghlmnrpx
5p. Sp. Touring.	995	4	2640	aeghmnr	4p. Touring.	2700	4	3365	afghlmnr	Closed Models.				Bghjkmprx	4p. Speedster.	3595	4	4509	aeghlmnrpx
2p. Coupe.	925	2	2660	aeghmnr	7p. Touring.	2850	4	3500	afghlmnr	<b>"New Phan"</b>					4p. Speedster.	3845	4	4600	aeghlmnrpx
5p. Sedan, 2d.	925	2	2675	aeghmnru	5p. Club Bro'm.	2475	2	3540	afghlmnrpx	Open Models.				Beghjkmpxr	2p. Black Hawk	4895	2	4302	beghlmnrpx
2-4p. Spt. Coupe.	995	2	2675	aeghmnru	2p. Coupe metal.	2650	2	3460	afghlmnrpx	Closed Models.				Beghjkmpxr	4p. Black Hawk	4945	2	4302	beghlmnrpx
5p. Sedan, 4d.	1025	4	2675	aeghmnru	5p. Brougham.	3250	2	3540	afghlmnrpx						2p. Coupe.	3495	2	4649	aeghlmnrpx
5p. Landau Sed.	1085	4	2860	aeghmnru	2p. Coupe leath.	2650	2	3490	afghlmnrpx						4p. Vic. Coupe.	3495	2	4679	aeghlmnrpx
<b>"DeLuxe Series"</b>					5p. Club Sedan.	2750	4	3635	afghlmnrpx						5p. Coupe.	3545	2	4769	aeghlmnrpx
5p. Phaeton.	1145	4	2800	Beghiklmnr	2-4p. Coupe met.	2750	2	3530	afghlmnrpx						5p. Sedan.	3570	4	4977	aeghlmnrpx
Roadster.	1145	2	2770	Beghiklmnr	5p. Sedan.	2750	4	3605	afghlmnrpx						5p. Brougham.	3570	4	4820	aeghlmnrpx
Spec Coupe.	995	2	2760	Beghiklmnr	2-4p. Coupe lea.	2750	2	3560	afghlmnrpx						2p. Cab. Coupe.	3695	2	4520	aeghlmnrpx
Sport Coupe.	1145	2	2840	Beghiklmnr	2p. Con't Cpe.	2850	2	3455	afghlmnrpx						7p. Speedster.	3895	4	4748	aeghlmnrpx
Sedan.	1175	4	3005	Beghiklmnr	5p. Club Land.	2850	4	3640	afghlmnrpx						5p. Country Club				
DeL. Landau	1235	4	3005	Beghiklmnr	7p. Sedan.	2850	4	3700	afghlmnrpx						7p. Sedan.	3895	4	5618	aeghlmnrpx
					4p. Coupe.	2950	2	3490	afghlmnrpx						7p. Sedan Lim.	3995	4	5159	aeghlmnrpx
					2-4p. Con't Cpe.	2950	2	3525	afghlmnrpx						5p. Collap. Sed.	3995	5	5020	aeghlmnrpx
					7p. Enc. Dr. Lim.	2950	4	3755	afghlmnrpx						5p. Collap. Lim.	4095	5	5030	aeghlmnrpx
					5p. Sedan Land.	3050	4	3605	afghlmnrpx						7p. Collap. Lim.	4195	5	5030	aeghlmnrpx
					7p. Sed. Landau.	3700	4	3700	afghlmnrpx						<b>"Wayman-Cas."</b>				
					7p. Enc. Dr. Land.	3800	4	3755	afghlmnrpx						131" W.B.				
					5p. Opera Bro'm	7000	4	35							2p. Black Hawk	4895	2	4302	beghlmnrpx
															5p. Sedan.	4120	4	4393	aeghlmnrpx
															4p. Sedan.	4120	2	4302	aeghlmnrpx
															4p. Coupe.	4120	4	4302	aeghlmnrpx
															5p. Landau Sed.	4420	4	4302	aeghlmnrpx
															145" W.B.				
															5p. Sedan.	4495	4	4302	aeghlmnrpx
															5p. Sedan.	4545	4	4302	aeghlmnrpx
															7p. Sedan.	4745	4	4302	aeghlmnrpx
															7p. Limousine.	4995	4	4778	aeghlmnrpx
															7p. Landau Lim.	5295	4	4302	aeghlmnrpx
															<b>"Salon Cas."</b>				
															5p. PW Sedan.	6345	4	4302	aeghlmnrpx
															7p. PW Sedan.	6345	4	5014	aeghlmnrpx
															7p. Con. T'n Car	6895	4	5044	aeghlmnrpx

### KEY TO SYMBOLS

\*—Italic figures denote shipping weight.  
A—Wood wheels with spare.  
a—Wood wheels.  
B—Wire wheels with spare.  
b—Wire wheels.  
C—Optional wheels with spare.

- c—Type of wheels optional.
- D—Disk wheels with spare.
- d—Disk wheels.
- e—Front and rear bumpers.
- f—Front bumper.
- g—Shock absorbers or snubbers.
- h—Automatic windshield wiper.

- i—Trunk and trunk rack.
- j—Trunk rack, no trunk.
- k—Spare tire.
- l—Spare tire lock.
- m—Engine heat indicator.
- n—Dash gasoline gage.

c—Car heater.  
 p—Cigar lighter.  
 r—Rear traffic signal.  
 s—Spotlight.  
 t—Vanity and smoking set.  
 u—Smoking set

v—Vanity set.  
w—Windshield wings.  
x—Clock.  
‡—Overall length.  
§—Price on application.

# Mechanical Specifications of Current Passenger Car Models

This list comprises current cars distributed on a national basis only. Data for previous models back to 1920 will be found in the Chilton Catalog and Directory

MAKE AND MODEL	Wheel Base (Inches)	Tire Size	Model and Make	Bore and Stroke	Rated H.P.	Piston Displacement	Valve Arrangement	Maximum Brake Horsepower at Specified Speed	Compression Ratio	Camshaft Drive	Piston Material	No. Main Bearings	Crankshaft Vibration Damper	Oiling System	Oil Cleaner?	Radiator Shutters	Carburetor	Air Cleaner?	ELECTRICAL SYSTEM		Clutch—Type and Make	Gear Set—Make	Universals—Type and Make	REAR AXLE		BRAKES		Steering Gear—Make	Rear Spring—Type and Length	Chassis Lubrication—	ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS		
																			Generator and Starter Make	Ignition System Make				Type and Make	Foot—Type and Location	Hand—Type	4-Wheel Type						
Auburn	76	28x5.25	Lyc.	6-27x4 1/2	19.8	185	L	60-3400	5.05	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	A-Bos—American-Bosch
Auburn	88	30x6.00	Lyc.	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	5	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	A-K—Atwater Kent
Auburn	115	30x6.50	Lyc.	8-27x4 1/2	33.3	299	L	115-3200	5.25	Ch. Als.	Als.	5	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	A-L—Auto-Lite
Buick	115 1/2	30x6.50	GS	8-27x4 1/2	33.3	299	L	74-2800	4.3	He. B.	B.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Ad—Adams
Buick	121 & 126	32x6.50	GS	8-29x5	31.5	310	L	91-2800	4.3	He. C.I.	C.I.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Am—Almetal
Cadillac	121 & 126	32x6.50	GS	8-29x5	31.5	310	L	91-2800	4.3	He. C.I.	C.I.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Am—Almetal
Cadillac	140	32x6.50	GS	8-29x5	31.5	310	L	91-2800	4.3	He. C.I.	C.I.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Am—Almetal
Chandler	109	29x5.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chandler	118	29x5.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chandler	124	32x6.50	GS	8-29x5	31.5	310	L	91-2800	4.3	He. C.I.	C.I.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chandler	124	32x6.50	GS	8-29x5	31.5	310	L	91-2800	4.3	He. C.I.	C.I.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107	30x4.50	GS	8-27x4 1/2	20.4	247	L	88-3200	5.15	Ch. Als.	Als.	4	Y	PG	N	N	Sch.	N	N	D-R	D-R	P. Long	War.	m-U.P.	Col.	4.9	F	E-T	H	Ross	S-56 1/2	Bij	Bal—Ball & Ball
Chrysler	107																																



# *The Greatest* **October** *in* **DURANT** **HISTORY**

In October alone the Durant plants produced 42.5% more cars than in the best previous October.



Month after month in 1928 Durant cars have broken their own sales records. On October 31st, 41% more Durant cars had been built and sold by all Durant plants than at the same time in 1927—30.8% more than the entire 1927 production.

**DURANT MOTORS, Inc.** 250 West 57th Street  
New York, N. Y.

FACTORIES AT Elizabeth, N. J., Lansing, Mich., Oakland, Calif.,  
and Toronto, Ont., Canada

**“THE DURANT LINE IS A BRILLIANT SUCCESS”**





# Taking a profit pelt from the wolf of winter



*A full page AC advertisement appearing in The Saturday Evening Post of Nov. 24 tells motorists how to put their cars in shape to withstand winter.*

**T**HIS advertisement will help you if you will extend your hand to help the motorist. Make it a point to inspect his spark plugs. Tell him a new set of AC's will insure easier starting, more power, more certain performance. Remind the car owner that winter puts added demands upon the lubrication system. Perhaps his AC Oil Filter needs attention.



After 10,000 miles of service, an AC Renewal Cartridge makes it as good as new. Your customers will appreciate cold weather suggestions. Getting ready for winter means more business for the dealer. The time to get ready is right now. Complete charts showing correct replacements of AC Spark Plugs and approved installations of Renewal Cartridges will be gladly forwarded upon request.

**AC-SPHINX**  
Birmingham  
*ENGLAND*

**AC Spark Plug Company**  
**FLINT, Michigan**

**AC-TITAN.**  
Clichy (Seine)  
*FRANCE*

AC SPARK PLUGS   AC SPEEDOMETERS   AC AIR CLEANERS   AC OIL FILTERS   AC FUEL PUMPS  
AC GASOLINE STRAINERS   AC AMMETERS   AC OIL GAUGES   AC THERMO GAUGES

© 1928, AC Spark Plug Co.

## The safest car

Car dealers everywhere will be vitally interested in the ready profits to be made in selling a brand new and truly remarkable automobile that will be ready for delivery and introduction at the time of the New York Automobile Show. Priced to retail for approximately \$2500

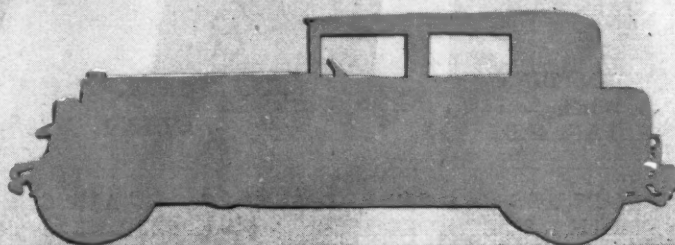
—made by a new division of an old established car producer. The safest car ever built.

## Performance

Only through actual driving can you realize to the fullest extent the performing abilities of this new car. The motor develops unusual horsepower, speed and acceleration. Power a-plenty under the hood—always a reserve to answer any emergency. The car responds with an alertness that is almost like a shot out of a gun.

## Factory policies

Car dealers themselves in days gone by, the executives of the company building the new car realize the basic necessity for fair and equitable dealer policies. They do not believe in arbitrary sales quotas, "forced" shipments of cars, or dictatorial factory supervision. They do believe in ample territory provision with sane price protection, helpful factory sales assistance, ample discounts, an adequate but never bothersome new car inventory.





## A great improvement

No rolling backward when the car is stopped on a hill or incline of any degree. A simple, effective automatic device that holds the car, even without the brakes being applied. Women especially will welcome this new-to-the-industry idea. A powerful aid in clinching a sale. A great improvement!

## A complete line

Ten beautiful, distinctive body types comprise the line of the new car. Four standard closed cars, three standard open cars and three closed cars equipped with special Weymann flexible bodies such as are used on the majority of European cars. Every model virtually a custom-built product.

## Outstanding features

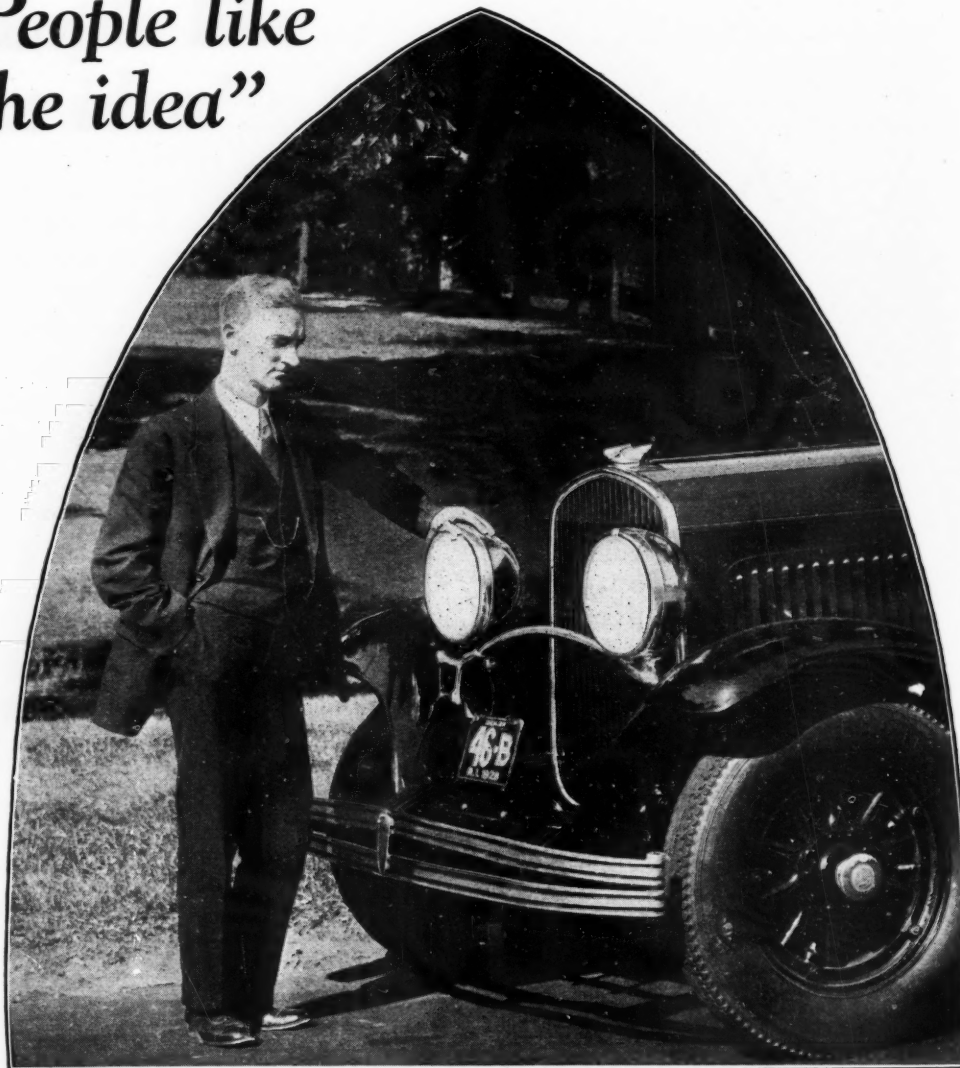
Keep these things in mind—a car with a six or eight cylinder motor, low center of gravity, distinctive bodies, unusual performance, an automatic device to prevent backward roll, ten distinctive models. Made by a factory that does not believe in "forced" shipments—dictatorial factory supervision—or restricted territory provision.

## Write—today

It is not yet time to divulge the name of the new car and for trade reasons, all signatures are omitted from this advertisement. Dealers who desire additional information are invited to write—at once. Such communication will in no way obligate the inquirer.

Address: Manufacturer New Car, care  
MOTOR AGE  
56th and Chestnut Streets, Philadelphia

*"People like  
the idea"*



**T**HIS month we want you to meet Mr. E. J. Brady of Colt, Birmingham and Brady, of Providence, Rhode Island, Chrysler Distributors (as the photograph indicates). Mr. Brady is an authority on New England winters and what to do about them. This is what he says about Radiator Glycerine:

"Our experience with Radiator Glycerine for the past three years has been most satisfactory to us. It is a great relief to get away from the necessity of always watching car owners' radiator solutions to be sure they have the correct percentage to prevent freezing. With Radiator Glycerine, it is added to the cooling system at the begin-

ning of the cold weather and entirely forgotten for the rest of the season.

"We have likewise found it is more economical to use than any other solution that has come to our attention. Just be sure the cooling system is good and tight to prevent leakage.

"People like the idea of an all-winter anti-freeze that won't evaporate. We find plenty who are willing to pay the higher "first" cost for Radiator Glycerine to get rid of cold snap worry, particularly when they find it won't hurt the paint, that it doesn't smell up the car when warm, and that it will last all winter and cost less in the end.

"We find that Radiator Glycerine is beneficial to the motor because its boiling point is a



**"Radiator Glycerine will be  
universally used in a very  
short time" —E. J. Brady**



REG. U.S. PAT. OFF.

# **RADIATOR Glycerine**

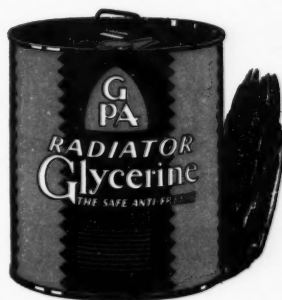
**THE SAFE ANTI-FREEZE**

little higher than that of water so it will not boil off at ordinary motor temperatures. This makes it very adaptable where winter fronts are used.

"We have found that cars using Radiator Glycerine require very little water to be added during the winter season.

There is no question in our minds but that Radiator Glycerine will be universally used in a very short time."

There isn't a great deal for us to add to what Mr. Brady has said. As you probably know, Radiator Glycerine meets all the



requirements of a perfect anti-freeze, as laid down by the U.S. Bureau of Standards. It was used at the North Pole by Amundsen. Motor car builders, winter-front manufacturers, car dealers and service men representing the finest element in the trade endorse it as good for the cus-

tomer and good as a business proposition. That probably means more to you than anything we can say.

We believe you should investigate G.P.A. Radiator Glycerine from a business standpoint.

GLYCERINE PRODUCERS' ASSOCIATION, 45 EAST 17TH STREET, NEW YORK CITY



## The kind of a car—and the kind of a franchise that looks GOOD to dealers—

**T**HE new Six-81 is proving the most popular model that Peerless has ever built and offered the public at \$1595.

It has captivating charm—radiant beauty—spirited action—typical Peerless dependability—these are the things that have won public and dealers alike.

The new Six-81 is built by one of the oldest institutions in the motor car field—bearing an honored old name—backed by powerful, consistent advertising.

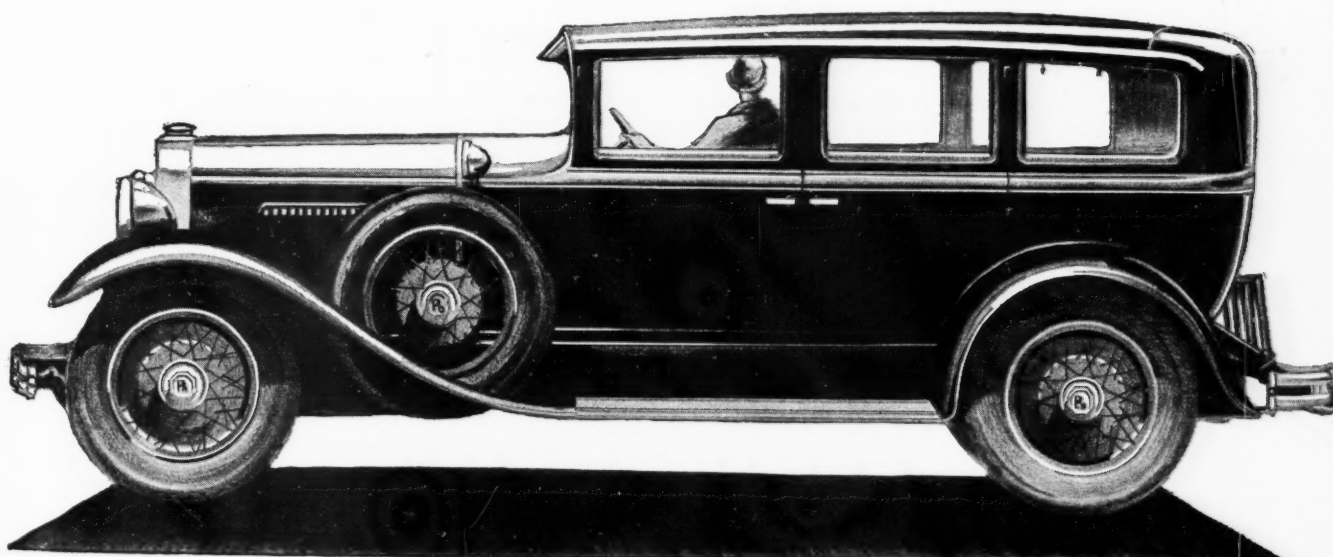
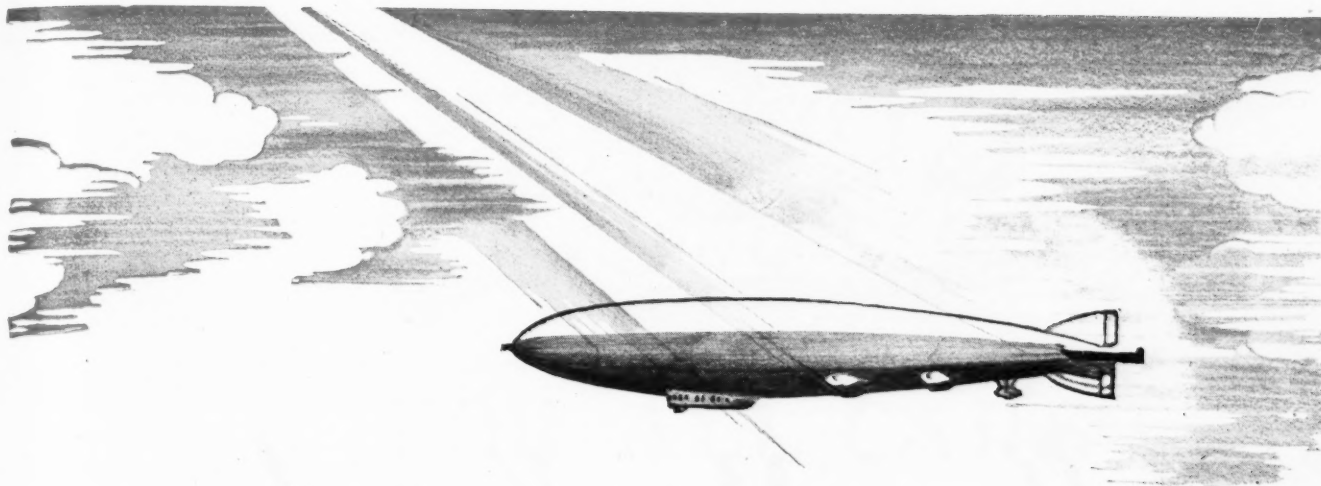
Peerless has a big program mapped out for 1929 that is most attractive. It includes a line of motor cars to sell at a popular price. Our scale of discounts is most liberal, and our policy toward dealer and distributor is one of helpful cooperation.

The Peerless outlook is good. 1929 should be a great Peerless year. Write, wire or phone for the Peerless proposition today.

PEERLESS MOTOR CAR CORPORATION · CLEVELAND, OHIO  
Six-81 closed models \$1595 and up · · · Six-91 closed models \$1895 and up  
(F. O. B. Factory)

**P E E R**  
**A L L T H A T T H E**





*Six-81 DeLuxe Sedan*

LES S

N A M E I M P L I E S



## *These Men Know!*

More than 100 Engineers  
have approved Cowdrey  
Brake Testers.

*They came from:*

- Proving grounds
- Factory experimental departments
- Factory chassis engineering departments
- Factory production departments
- Factory service departments
- Safety departments
- Oil companies
- Tire companies
- Public transportation companies
- Insurance companies

*They ALL Said, "OK."  
Could they ALL be Wrong?*

**COWDREY BRAKE TESTER ORGANIZATION, Inc.**  
**Fitchburg** **Massachusetts**



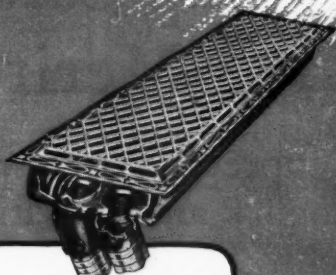
# Cooper

## HEATERS FOR ALL CARS


### Proving Their Worth

With the coming of cold winds and frosty mornings, the vast number of Cooper Car Heaters that have been sold and installed by our dealers this Fall, are beginning to pay dividends. Owners who have invested from \$3.00 to \$22.50 in a Cooper Heater are realizing the wisdom of their investment. On their recommendation new Cooper prospects are being created. Are you prepared for the big demand for Cooper Heaters? With only half a dozen styles the Cooper Line is complete—a popular priced heater to fit every make of car. We want to tell you more about this wonderful profit paying line. Mail the attached coupon today for complete information.

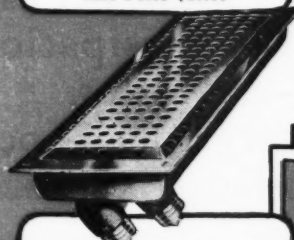
**COOPER MANUFACTURING CO.**  
Marshalltown, Iowa, U. S. A.  
Exclusive Sales Representative  
**THE FULTON CO., Milwaukee, Wisc., U.S. A.**



**Long Register Exhaust**  
Polished aluminum, 21 $\frac{3}{8}$ " long and 7 $\frac{1}{2}$ " wide. Furnished complete with Valve, Dash Control, and Tubing.  
List Price \$22.50

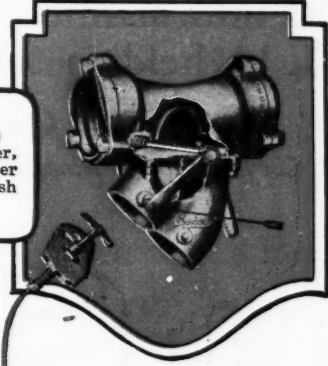


**Rail Type Exhaust Heater**  
16" register, olive green lacquer finish, convenient foot rest. Valve, Dash Control, and Tubing furnished.  
List Price \$15.00

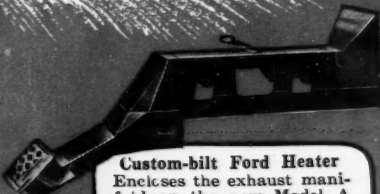


**Standard Exhaust Type**  
Perforated steel register, 14 $\frac{1}{2}$ "x6 $\frac{1}{2}$ ", green lacquer finish. With Valve, Dash Control, and Tubing.  
List Price \$12.50


#### Cooper Valve with Dash Control



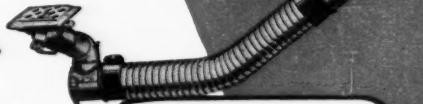
At the left is shown the famous Cooper 3-way valve through which all Cooper Exhaust Type Heaters operate. Interchangeable end-locking rings hold this valve firmly to the exhaust pipe. Operation is regulated by dash control and all used exhaust gases are discharged thru the original motor exhaust outlet.



**Custom-bilt Ford Heater**  
Encloses the exhaust manifold on the new Model A Ford Car—easy to install, efficient, dependable, and low priced. Polished nickel floor register.  
List Price \$3.00



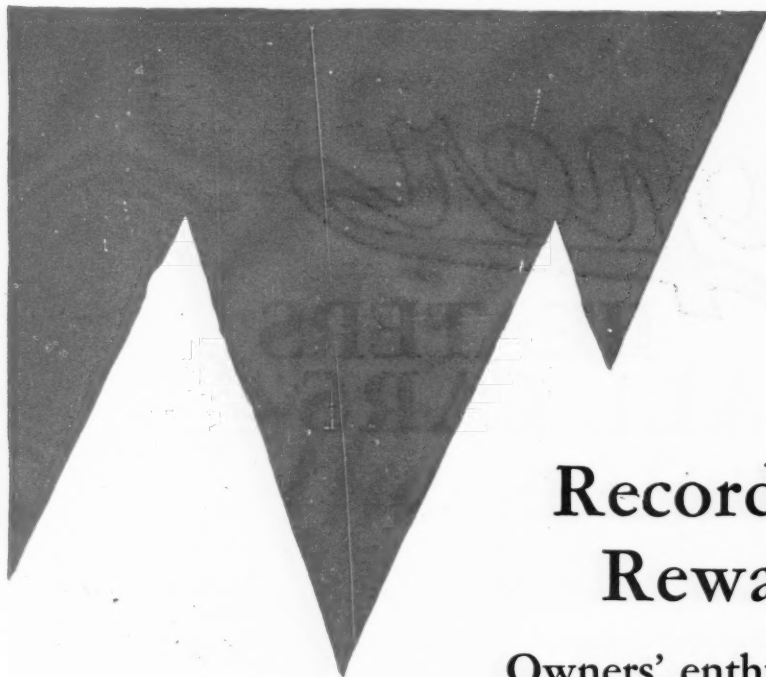
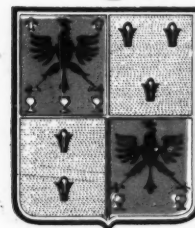
**Custom-bilt Chevrolet**  
Replaces the regular exhaust manifold on the 1928 Chevrolet, taking full advantage of two-port exhaust outlet. Polished nickel floor register.  
List Price \$7.00



**"Flexo" Forced Draft**  
One model fits 95% of cars. Heating jacket encloses section of exhaust pipe with forced draft from motor fan to nickeled register.  
List Price \$10.00

## Mail Coupon Today

Cooper Mfg. Co., Marshalltown, Iowa.  
Please send complete information on the  
Cooper Line of Car Heaters.  
Name \_\_\_\_\_  
Address \_\_\_\_\_

*DeSoto**Multum pro parvo*

## Record-Breaking Sales Reward True Merit

Owners' enthusiastic appreciation, inspired by the outstanding quality and sensational performance of the new De Soto Six, has created for this latest Chrysler-built Six an initial three months' sales volume that breaks all records for the industry. ♣ ♣ In terms of dealer profit, this unprecedented demand contributes a double benefit. It reduces sales resistance to a negligible minimum, and places trade-in allowances on a far more advantageous basis. ♣ ♣ No experienced motor car dealer needs to be reminded that such a condition always creates an opportunity for a higher margin of profit per car, with far less danger of its dissipation through subsequent used-car losses. ♣ ♣ Requests for information regarding open territory will be held in strict confidence.

DE SOTO MOTOR CORPORATION  
*{Division of Chrysler Corporation} Detroit, Michigan*

# DE SOTO SIX

PRODUCT of CHRYSLER



# For Christmas—



## A BULGING BUNDLE of FIRESIDE COMFORT

FOR ALL THE REST OF HIS COLD WEATHER DRIVING

*The Universally Popular, Always Dependable—*

## ARVIN HEATERS

Make An Instant Appeal to the Heart of Every Travel-Loving American Family

ARVIN PROFITS will put a Christmas Smile  
on the glad side of your ledger

NOBLITT-SPARKS INDUSTRIES, Inc., INDIANAPOLIS, INDIANA

Formerly Indianapolis Pump and Tube Company

# What Does Direct Mail Addressing Cost You ?

Can you get accurate production figures which will cover:

1. Cost of Addressing to Dead Names?
2. Cost of Addressing to Improperly Classified Names?
3. Cost of Making Selections from Your List?
4. Cost of Errors Made by Inexperienced Help?
5. Cost of Keeping Your List Up to Date?
6. Cost of Omitting Good Names Which Are Not on Your List?

## The Chilton Automotive List of 135,000 Names Is Corrected Daily

Over 20,000 Names are dropped each year.

Over 25,000 Names are added each year.

Over 50,000 Names and addresses are changed each year.

A force of more than 100 people are kept busy every day to accomplish this, with the result that the Chilton List—with over 95,000 changes each year—is the outstanding leader in its field.

Mechanical equipment makes selections to suit your needs, and complete printing, multigraphing, binding and creative art and copy service are available, in addition to merchandising counsel of our representative in your territory.

You will find a distinct saving in addressing from the Chilton List. Write us for complete details as applied to your particular requirements.

### CHILTON CLASS JOURNAL COMPANY

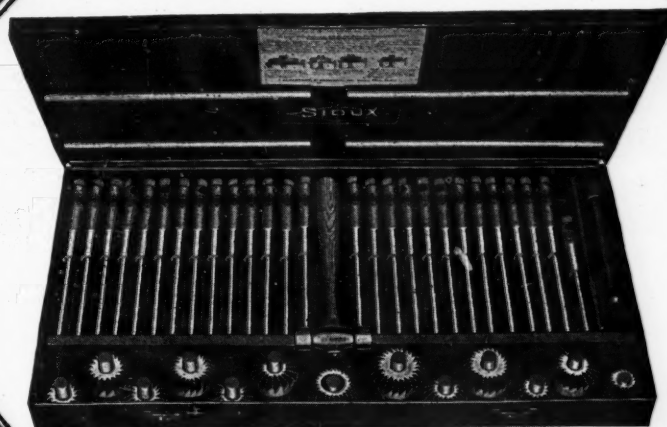
*Direct Mail Division*

Chestnut and 56th Streets

Philadelphia, Pa.



# VALVE SEAT REAMER SETS



No. 80 NET PRICE COMPLETE \$82<sup>50</sup>



## fills a Real Need!

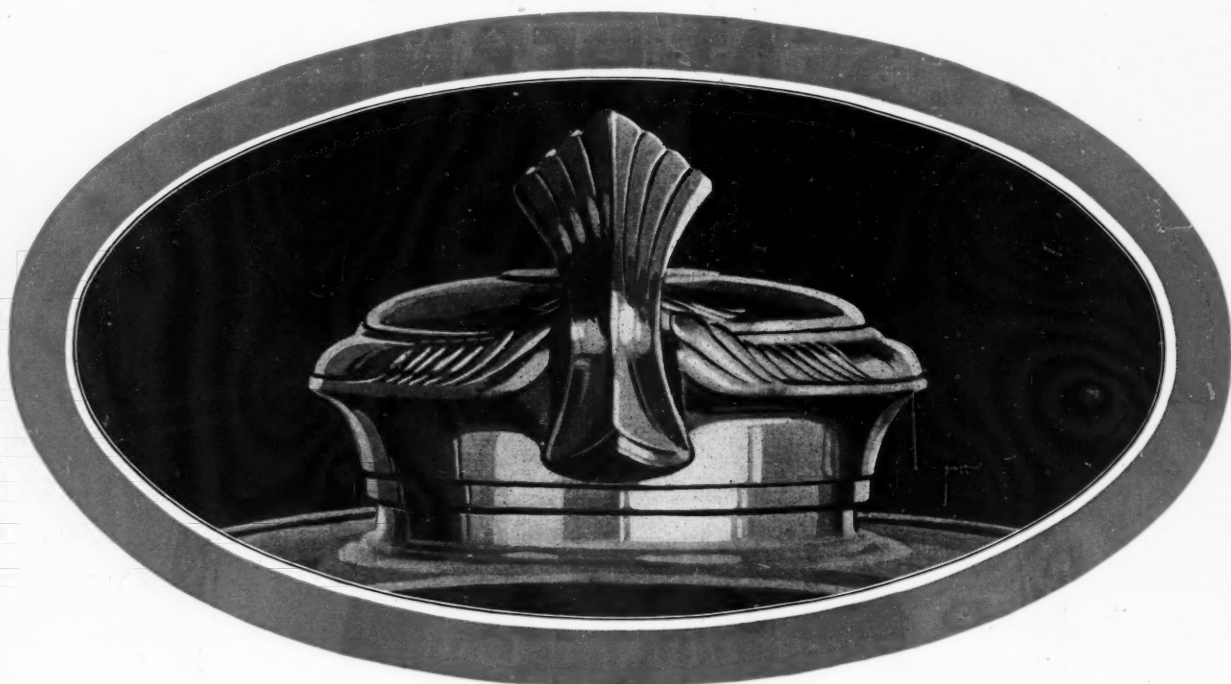
**S**HOPS handling many makes of cars have long wanted just such complete reamer equipment in such a handy form. Sioux No. 80 set was brought out in answer to an insistent demand. It handles practically 90% of all automobile motors. It includes Sioux Roughing Reamers and Finishing Reamers in both 45° and 30°,—Sioux 15° and 75° Nicked Tooth Reamers for narrowing valve seats and 27 Sioux hardened and precision ground pilot stems, including standard and oversizes.

*The Oversize Pilot Stems* are provided for use in worn guide holes, to prevent wobbling or traveling and to assure the perfect fit necessary for perfect work. *The Sioux Roughing Reamers* provide the easiest and most satisfactory method of removing the hard glazed surface from valve seats making it easy for the Sioux Finishing Reamer to complete a first class job. *The Nicked Tooth* feature of Sioux 15° and 75° Reamers is an exclusive Sioux advantage.

*With this set, you can make big money on valve work.*

**Your Jobber Sells It!**

ALBERTSON & CO.  
Sioux City, Ia., U. S. A.



## ANNOUNCING NEW ROUND TYPE Monogram Automatic Locking Radiator Caps

**T**HE hinge lid construction of these caps makes radiator filling easy. Hence, this means convenience for the motorist and protection for the motor.

Sitting low on the radiator, they harmonize with present-day car design. Hence, they do not change the appearance of the car.

Locking in place automatically they are proof against theft and loss.

Exquisitely artistic in appearance and of the famous Monogram quality of construction these caps will make double appeal to all motorists because of their practical utility features.

Write for literature giving prices and car and cap size lids.

**THE KINGSLEY-MILLER CO.**  
625 WEST JACKSON BOULEVARD, CHICAGO, U. S. A.





## Ever widening circles of appreciation

Always there is that first few who discover in a product something finer and better which sets it apart.

Then, in test after test, those first qualities are proved.

The superiority continues, the circle widens and so success is made.

Just so Carter has won recognition, inspired confidence and attracted greater demand.

Production has grown, factory enlargements have been made to meet the increased requirements. But

never has Carter deviated from those

first principles of finer manufacture which continue to attract favorable attention in ever widening circles of appreciation.

CARTER CARBURETOR CORPORATION, St. Louis

Division of American Car and Foundry Company



# CARBURETOR

T. M. REG.

# Plymouth

CHRYSLER

*Full Size, Style  
and Performance*

## That Mean Unexampled Profit Opportunity

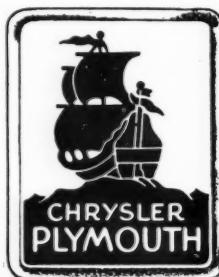
PLYMOUTH'S full size, greater style, comfort, luxury and performance have caused millions to acclaim it as the greatest dollar value in the lowest-priced field.

This recognition has produced a demand which is obviously a new profit opportunity for the Plymouth dealer.

The dealer who hasn't a


Plymouth franchise owes it to himself to inquire at once into the possibilities of making more money in the motor car business than he ever had a chance to do before.

We may have an opportunity for you. Wire, write or phone and we shall be glad to advise you. We will keep your inquiry strictly confidential.



PLYMOUTH MOTOR CORPORATION, DETROIT, MICHIGAN  
(Division of Chrysler Corporation)





# How Would You Like to Enjoy the **GREATER PROFITS** *in Store for Oakland-Pontiac Dealers?*



Long a builder of record profits, the Oakland-Pontiac Franchise now presents even greater money-making opportunities to dealers who sell Oakland and Pontiac Sixes.

For with Pontiac maintaining its record-breaking sales pace, Oakland-Pontiac dealers now obtain another competitive advantage in the surpassing appeal of the New All-American Six. Its smart, original style and thrilling new performance already are creating a demand that assures new sales records and new profit records.

Always this franchise has been distinguished by willing factory

cooperation . . . by carefully controlled production . . . by liberal discounts and by fast selling products. But now—with the New All-American advancing to match even Pontiac's tremendous popularity—the franchise offers brilliant opportunities for dealers to attain far greater heights of prosperity.

Would you like to share this growing prosperity? Would you like to sell these two great General Motors Sixes? It may be possible for you to obtain the profit-building Oakland-Pontiac Franchise. Write to Department C for full details. And mail it today!

OAKLAND MOTOR CAR COMPANY, PONTIAC, MICHIGAN

## OAKLAND-PONTIAC

### *Double-Profit*

---

### Franchise

---

*for Economical Transportation*

# PROGRESS

—that the public may be better served



**D**URING the past two years, Chevrolet has been the world's largest builder of automobiles, producing and selling more than 1,000,000 cars annually. This accomplishment represents one of the most spectacular examples of industrial progress during recent years. And it has been largely made possible by unswerving adherence to the manufacturing policy expressed in the famous Chevrolet slogan, "Quality at Low Cost."

In carrying out this policy, Chevrolet has produced a low-priced automobile providing not only utility but offering also advanced design, modern features and the acknowledged distinction and beauty of bodies by Fisher.

By thus meeting the demand of the vast majority of motor car buyers, Chevrolet has enjoyed ever-increasing public acceptance and tremendous success—has been

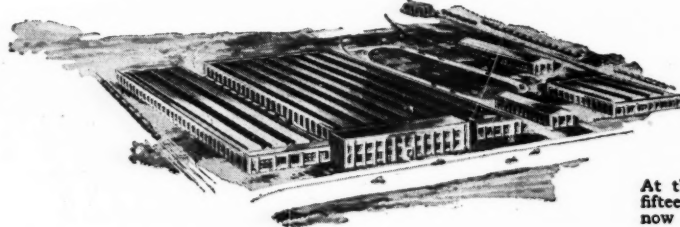
able to expand its manufacturing resources until it stands today in the forefront of the world's great commercial enterprises.

It has erected fourteen mammoth factories at strategic points of distribution throughout America. It has installed in these factories the most advanced equipment and machinery known to engineering science. It employs standards of accuracy and precision once undreamed-of. And finally, it has built up an organization of over 15,000 authorized Chevrolet dealers and service stations to provide the widest possible service to the public.

Thus, in a period of a comparatively few years, Chevrolet has created a new standard of what the buyer of a low-priced automobile could expect. It has made luxurious transportation the pleasure of the many rather than the privilege of the few. It has made progress an automotive watchword. And, by the creation of tremendous facilities, has laid a firm foundation for the continuance of its policy of progress—that the public may be even better served in the future.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

*Division of General Motors Corporation*



At the left is illustrated the fifteenth Chevrolet factory—now nearing completion at Kansas City.

Q U A L I T Y   A T   L O W   C O S T



# The Brilliant Engineering Record . . . . of Lockheed Hydraulics

. . Compare it with that of any other kind of automobile braking system in point of fundamental soundness and freedom from changes in design.

**F**OR every manufacturer and engineer in the automotive industry, there is deep significance in the unshakable loyalty of motor car companies which have used Lockheed Hydraulics over a period of years.

In that time and in *other kinds* of braking systems, there have been almost continuous major changes in the theory and the principle of the application of braking power.

In the same period, there has been *no fundamental change* in the design of Lockheed Hydraulic Four Wheel Brakes. Lockheed, beginning with an external brake, later developed an internal expanding brake—but the generation and application of braking power is the same as in the first Lockheed Hydraulic system installed on a motor car.

Every car manufacturer, every automotive engineer, knows what this freedom from change has meant to

the companies which have standardized on Lockheed Hydraulics.

While other manufacturers have been spending millions of dollars in engineering and in experimentation, in the changing from one design to another design, the manufacturers employing Lockheed Hydraulics have been free from doubt and unusual difficulty and expenditure in this direction.

The reason for the engineering success of Lockheed Hydraulics goes straight back, of course, to the inherent superiority of the hydraulic principle.

It is the proper application of this principle in Lockheed Hydraulics which assures equalized braking pressure at all times and enables engineers to solve their braking problems, either for cars or trucks, without costly experiment and waste motion.

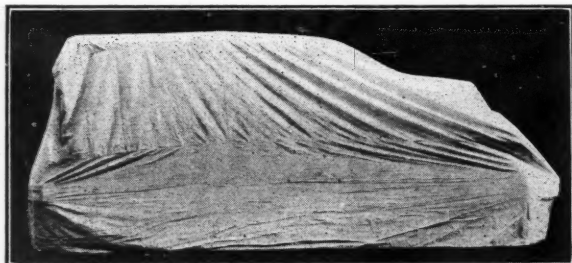
HYDRAULIC BRAKE COMPANY, DETROIT, MICHIGAN, U. S. A.

## LOCKHEED HYDRAULIC

*Four* BRAKES *Wheel*

## Protect New Car Finish!

with  
**KEEP KLEAN  
Car Covers**



These covers of strong unbleached muslin afford complete protection against dust and moisture, and are specially designed for Winter Storage purposes. Easily laundered, will outlast many ordinary coarse paper covers with no chance of scratching paint. Order a few NOW.

### 3 Standard Sizes in stock, immediate shipment

List Price	110"-120" wheelbase	\$11.75 ea.
subject	120"-130" wheelbase	\$12.25 ea.
liberal dealer discount	130" and over . . . .	\$13.00 ea.

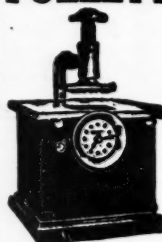
N. B.—Interesting prices will be furnished for car covers of any special fabric desired.

P. W. Barnum & H. T. Stevenson

**Keep Klean Auto Products Company, Inc.**  
416-422 East 176th St., New York City

## FOLLETT'S NEW MODEL TIME STAMP

accounts for every labor minute



Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

**NOV 19 1920 4 31 PM**

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Learn the interesting details from our descriptive data.

Absolutely automatic — except for winding. Every machine guaranteed.

**Follett Time Recording Co., 217 High Street, Newark, N.J.**  
"Established Since 1904"



## Does what you've always known should be done

Takes lubrication where it's needed most: right up into cylinder walls, rings, valves, pistons.

... and merchandised to make it a big success for you. Get the facts!

DECROW AUTOMOTIVE SPECIALTIES, Inc.  
LOCKPORT, N. Y.

# DECROILER

# Ideas Build Business and Help Your Profits

Put new and practical ideas at work in your business and both you and your customers will be benefited.

MOTOR AGE is a dynamo of business-getting ideas for live dealers. Ideas that attract trade, reduce overhead, increase sales and add to your profits.

For your own good, read every issue of MOTOR AGE from cover to cover. Spot the ideas that you can adapt to your own business, put them at work and *cash in!*





clean  
with

SPEND less time stripping paint. Do it the easy Oakite way. You just flow on a hot solution, then rinse off the old paint with a hose. No tedious scraping. Yet the metal is left thoroughly clean. Danger of the new finish peeling or checking is eliminated. Send for booklet.

Manufactured only by  
OAKITE PRODUCTS, INC.  
18E Thames Street New York, N. Y.

**OAKITE**  
Industrial Cleaning Materials and Methods



The short visor on the modern car makes every new car buyer a prospect for *Visorite*. Fits any visor, can be attached in a few seconds with patent clamps. *No holes to drill*. Attractive—well made—casts a soft green light which dispels all glare.

Lists at \$2.95

Ask your jobber's salesman. If he cannot supply you, write direct giving his name.

SAYLOR MFG. CO., DENVER, COLO.  
2205 Champa Street

**Weidenhoff**  
SHOP EQUIPMENT for

**BATTERY and ELECTRICAL SERVICE**

Test Benches • Rectifiers • Constant Potential Battery Chargers • Lathes  
Battery Testers • Miscellaneous Undercutters • Growlers

4358 Roosevelt Road

Chicago, Illinois

**FLEXO**  
Trade Mark Reg.  
COMBINATION  
PISTON RINGS

**Guaranteed**

Two combination rings of special design with Expanders of finest Swedish steel. Guaranteed to seal cylinder and centralize pistons, eliminating oil pumping, piston slap and compression loss when properly installed. Write for details.

The Wel-Ever Piston  
Ring Co., Toledo, Ohio

There's always  
something new just  
at hand for the  
regular reader of  
**MOTOR AGE**

## Superior VAPOR-OILER

For ALL Automobiles

EASY WINTER STARTING



Lubricates upper chambers perfectly.  
Lubricates Valve and Valve Stems.  
Produces High Motor Efficiency.  
Prolongs life of Motor.  
Prevents carbon deposits, removes carbon from cylinders and valves.

Sold on a 15-day money back guarantee

Price to Dealers, \$3.25 each F.O.B. Chicago

Attractive proposition to County  
Distributors

List \$6.50 Complete  
including one quart  
SUPERIOR  
VAPOR-OIL

KACENA-THALER COMPANY

1466 South Michigan Ave.

Chicago, Ill.

To introduce, sample Superior Vapor-Oiler sent Postpaid on receipt of \$3.25

## OLDFORGE TOOLS

The amazing strength of OLDFORGE Tools has led to their adoption by thousands of expert mechanics. Every tool is so designed and balanced that it will perform perfectly. It has the "feel" of a well-proportioned tool in the hands of an expert.

Ask your jobber or write for catalog

Quality Tools Corporation  
New Wilmington, Pa.

**SHIMMY**  
~this free book tells  
how to correct it!

Ever since the coming of balloon tires and four-wheel brakes, SHIMMY has been the bugbear of drivers and service men alike.

We have never tackled a job that was not quickly and accurately set to rights by the Bear System of Wheel and Axle Alignment.

### SHIMMY IS IN THE AXLE

No amount of checking wheels or steering will correct it. But no room for details here—the whole story is in the Manual, and we'll be glad to send it to you free. Tells how to stop shimmy, hard steering, tire scuffing, and other troubles caused by wrong alignment. No obligation. Just sign and send the coupon.



Send for your  
free copy today

Bear Manufacturing Company,  
Rock Island, Ill.


Please send me without obligation your  
free Manual of Wheel and Axle Alignment,  
telling all about Shimmy and how to lick it.

Name.....

Address.....

City.....State.....


**CHANSON**  
Reg. U. S. Pat. Off.  
**Heaters for all Cars**  
 Manufactured by  
 CHANSON DIVISION, Illinois Iron & Bolt Co., Carpentersville, Ill.

**COWL SADDLE LIGHTS and BANDS**  
 In stock for all makes of cars  
 Easy to install Good discount  
  
**The ARMSTRONG CO.**  
 6340 PENN. AVE. E. E. PITTSBURGH, PA.


**Goerlich's**  
Patented UNIVERSAL  
**Muffler**  
**Fits ALL Cars and Trucks with 2 Sizes**  
 Designed to reduce back pressure to a minimum and guaranteed against blowing out.  
 Always immediate service from your Jobber. Ask him or send for circular.  
**Goerlich's**  
 4008 Lewis Ave. Toledo, O.

**LANDIS Shock Diffusers**  
 Now Ready for  
 FRANKLIN, PACKARD, MARMON  
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**LANDIS ENG. & MFG. CO.**  
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The Advertisers' Index is published as a convenience, and not as a part of the Advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

A		K	
AC Spark Plug Co....	49	Kacena-Thaler Co. ....	69
Albertson & Co.....	61	Keep Klean Auto Prod-	
Alvord-Polk Tool Co....	3	ucts Co. ....	68
Armstrong Co. ....	70	Kingsley-Miller Co....	62
Arrow Head Steel Prod-			
ucts Co. ....	70		
B		L	
Bear Mfg. Co.....	69	Landis Eng. and Mfg.	
Bellevue Mfg. Co.....	70	Co. ....	70
Budd Mfg. Co., Edward		Lupton's Sons Co.,	
G. ....	8	David ....	4
C		M	
Carter Carburetor Co...	63	Motor Wheel Corp.,	
Chevrolet Motor Co....	66	Back Cover	
Classified Advertising		N	
Section .....	70	Nash Motors Co.....	6
Cooper Mfg. Co.....	57	Neil Armature Co....	70
Cowdrey Brake Tester		New Departure Mfg. Co.	7
Organization, Inc....	56	Noblitt Sparks Indus-	
		tries .....	59
		NoLeex Corp. ....	70
		North Bros. Mfg. Co...	71
D		O	
Decrow Automotive		Oakite Products, Inc...	69
Spec., Inc.....	68	Oakland Motor Car Co.	65
Delco-Remy Corp.,			
3rd Cover		P	
De Soto Motor Corp....	58	Peerless Motor Car	
Durant Motors, Inc....	47	Corp. ....	54, 55
		Perfect Circle Co.,	
		2nd Cover	
E		Plymouth Motor Corp...	64
Eclipse Machine Co....	2	Q	
Ethyl Gasoline Corp....	1	Quality Tools Corp....	69
F		R	
Follett Time Recording		Right Way Brake Test-	
Co. ....	68	er Co. ....	70
G		S	
Glycerine Produc-		Saylor Mfg. Co.....	69
ers Assn.....	52, 53	Studebaker Corp. ....	5
Goerlich's .....	70	U	
H		United Motors Service,	
Houde Engineering		Inc. ....	72
Corp. ....	70	V	
Hudson Motor Car Co.,		Viscosity Oil Company.	70
Front Cover		W	
Hydraulic Brake Co...	67	Warren Tool & Forge	
I		Co. ....	70
Iler Electrical Mfg. Co.	70	Weidenhoff, Joseph....	69
Illinois Iron & Bolt		Wel-Ever Piston Ring	
Co. ....	70	Co. ....	69

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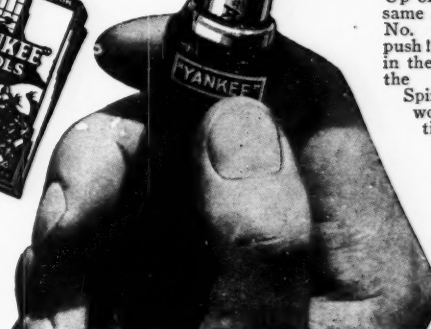
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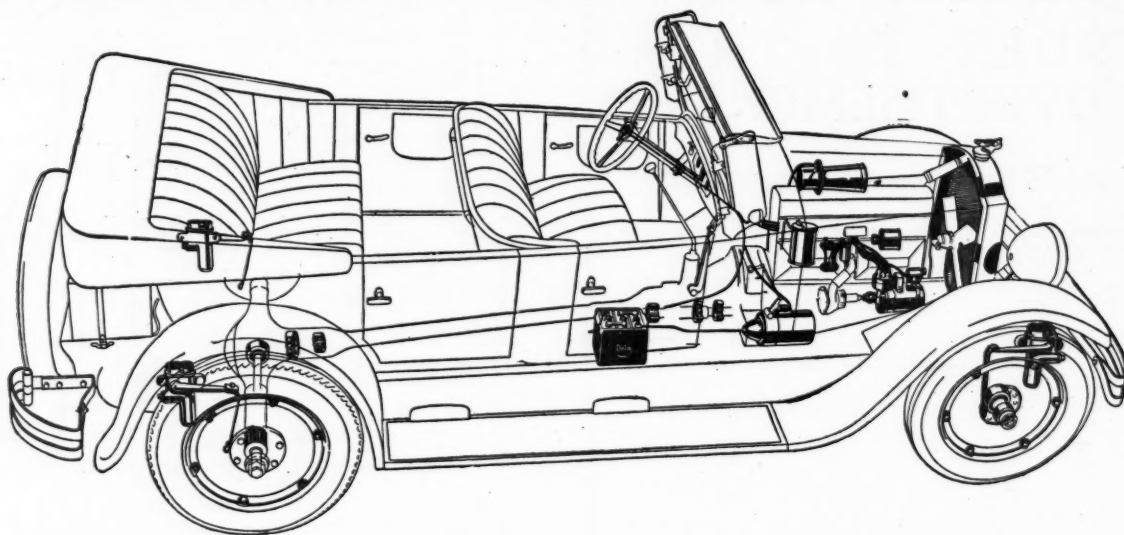


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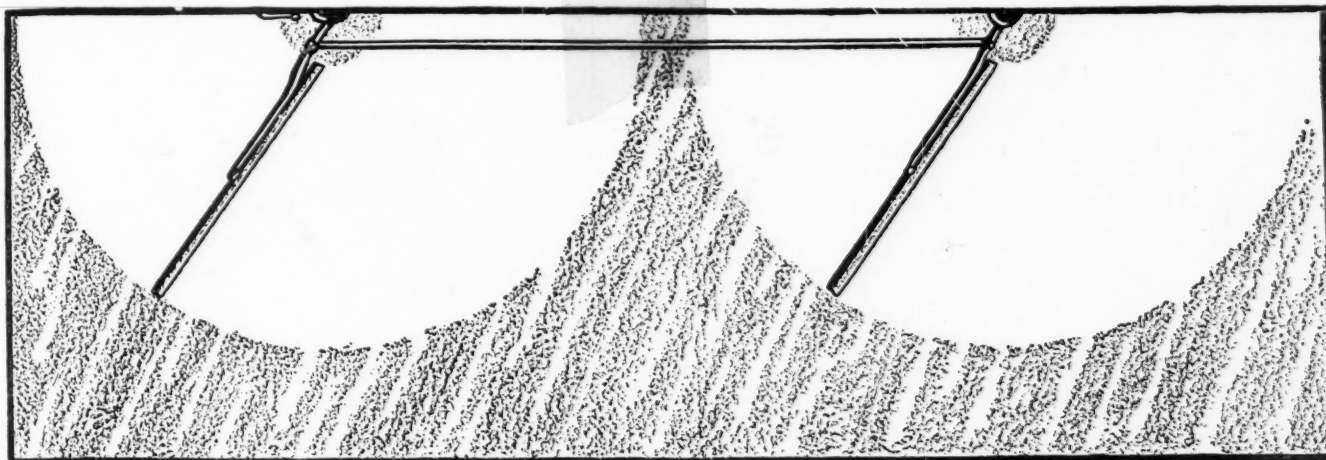
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